DIT

Part B 19-4

ETICAM Revised Part B Permit 1991

STATE OF NEVADA BOB MILLER Governor

JUL 2 1991

L. H. DODGION

Administrator

PETER G. MORROS

Director

ministration (702) 687-4670
Quality 687-5065
Mining Regulation and Reclamation 687-4670
Waste Management 687-5872



Wastewater Treatment Services 687-5870
Water Permits and Compliance 687-4670
Water Quality Planning 687-4670
FAX 885-0868

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

123 W. Nye Lane

Carson City, Nevada 89710 June 28, 1991

Byron B. Bradd, P.E. General Manager ETICAM 2095 Newlands Drive, East Fernley, Nevada 89408

RE: Class 2 Revised Modification Application Dated July 11,

1990

Dear Mr. Bradd:

Enclosed find the modified permit for the above referenced application. Please insert the revised pages in your copy of the permit. If you have any questions, please give me a call.

Sincerely,

Daniel P. Gross, P.E.

Supervisor, Facility Branch

Waste Management Bureau

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION PERMIT

FOR HAZARDOUS WASTE STORAGE AND TREATMENT

Permittee

ETICAM

Permit Number:

NEVHW001

Facility: ETICAM
This permit is issued by the Nevada Division of Environmental Protection (NDEP)
under authority of Nevada Revised Statutes (NRS) 459.520 and Nevada
Administrative Code (NAC) 444.8500 through 444.9335, inclusive, to ETICAM
(hereafter called the Permittee), to operate a hazardous waste management faci-

lity located in Fernley, Nevada, on 2095 Newlands Drive East, at latitute 32°36'37" North and longitude 119°12'07" West.

The permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (Parts I thru V consisting of pages 1 through 32 and Attachments 1 through 10) and the applicable regulations contained in 40 CFR Parts 260 through 264 and 124 and 270, and NAC 444.8500 through 444.9335 as specified in the permit. Applicable regulations are those which are in effect on the date of issuance of this permit.

This permit is based upon the assumption that the information submitted in the permit application attached to the Permittee's letter dated February 28, 1985 as modified by subsequent amendments dated May 15, 1985, September 10, 1985, April 15, 1986, and July 16, 1986 (hereafter referred to as the application) is accurate and that the facility will be constructed and/or operated as specified in the application. Any inaccuracies found in this information may be grounds for the termination or modification of this permit and potential enforcement

action. The Permittee must inform NDEP of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

This permit is effective as of <u>December 24, 1986</u>, and shall remain in effect until <u>December 24, 1991</u>, unless revoked or reissued, or terminated in accordance with NAC 444.8730 or continued in accordance with NAC 444.8730.

PART I - STANDARD CONDITIONS

A. EFFECT OF PERMIT

This permit authorizes only the management of hazardous waste expressly described in this permit and does not authorize any other management of hazardous waste. NDEP will consider compliance with the terms of this permit to be compliance with the requirements of NRS 459.400 through 459.600 and NAC 444.8500 through 444.9335 concerning the management of hazardous waste described in this permit. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations.

Compliance with the terms of this permit does not constitute a defense to any action brought under NRS 459.565, 459.570, 459.575, 459.580, 459.585, 459.595, and 459.600, or any other law governing protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in NAC 444.8730 and 40 CFR §270.41, §270.43, and §270.42. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated non-compliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in NAC 444.8500 through 444.9335 and Title 40 of the Code of Federal Regulations (40 CFR Parts 260 through 264 and 270), unless this permit specifically states otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. "Administrator" is the Administrator of the Nevada Division of Environmental Protection.

E. REPORTS, NOTIFICATIONS AND SUBMISSIONS TO THE ADMINISTRATOR

All reports, notifications or other submissions which are required by this permit to be sent or given to the Administrator should be sent certified mail or given to:

Program Director, Waste Management Section Nevada Division of Environmental Protection Capitol Complex Carson City, Nevada 89710 Telephone Number: (702)885-4670

F. SIGNATORY REQUIREMENTS

All reports or other information requested by the Administrator shall be signed and certified as required by NAC 444.8730 and 40 CFR §270.11.

G. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

The Permittee shall maintain at the facility, until closure is completed and certified by an independent Nevada registered professional engineer, the following documents and amendments, revisions and modifications to these documents:

- 1. Waste analysis plan required by NAC 444.8870, 40 CFR §264.13 and this \checkmark permit.
- 2. Personnel training documents and records required by NAC 444.8890, 40 \checkmark CFR §264.16(d) and this permit.
- 3. Contingency plan required by NAC 444.8925, 40 CFR §264.53(a) and this permit.
- 4. Closure plan required by NAC 444.9030, 40 CFR §264.112(a) and this permit.
- 5. Annually-adjusted cost estimate for facility closure required by NAC 444.9050, 40 CFR §264.142(d) and this permit.
- 6. Operating record required by NAC 444.8970, 40 CFR §264.73 and Part II, ν Section G.1 of this permit.

- 7. Inspection schedules and logs required by NAC 444.8885, 40 CFR §264.15(b) and this permit.
- 8. Documents required by Part I, Sections E and F, and Part II, Sections A through P of this permit.

H. DUTIES AND REQUIREMENTS

- Duty to Comply. The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any other permit noncompliance constitutes a violation of RCRA and NRS 459.515 and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.
- 2. <u>Duty to Reapply</u>. If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit a complete application for a new permit at least 180 days before this permit expires.
- 3. Permit Expiration. This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see NAC 444.8730, 40 CFR §§270.14 270.29 and §270.10) and through no fault of the Permittee, the Administrator has not issued a new permit as set forth in NAC 444.8730 and 40 CFR §124.15.

- 4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the permittee in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- 5. <u>Duty to Mitigate</u>. In the event of noncompliance with this permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.
- proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems to maintain compliance with the conditions of the permit.
- 7. <u>Duty to Provide Information</u>. The Permittee shall furnish to the Administrator, within a reasonable time, any relevant information which the Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also fur-

nish to the Administrator, upon request, copies of records required to be kept by this permit.

- 8. <u>Inspection and Entry</u>. The Permittee shall allow the Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:
 - a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor, at reasonable times for the purposes of assuring permit compliance or as otherwise authorized by NRS 459.400 through 459.600, any substances or parameters at any location.

9. Monitoring and Records.

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be

the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by the Administrator. Laboratory methods must be those specified in <u>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods</u> (SW-846, July 1982; 2nd ed.), <u>Standard Methods of Waste Water Analysis</u> (15th ed.; 1980) or an equivalent method approved by the Administrator and as specified in the attached waste analysis plan.

- b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or record. These periods may be extended by request of the Administrator at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.
- c. Records of monitoring information shall specify:
 - (1) The dates, exact place, and times of sampling or measurements;
 - (2) The individuals who performed the sampling or measurements;
 - (3) The dates analyses were performed;

- (4) The individuals who performed the analysis;
- (5) The analytical techniques or methods used; and
- (6) The results of such analyses.
- 10. Reporting Planned Changes. The Permittee shall give notice to the Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. This notice must include a description of all incidents of noncompliance reasonably expected to result from the proposed changes.
- 11. Anticipated Noncompliance. The Permittee shall give advance notice to the Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- 12. Transfer of Permits. This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to NAC 444.8730, 40 CFR §270.47(b)(2) or §270.42(d). Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270, and NAC 444.8500 through 444.9335.
- 13. Twenty-Four Hour Reporting. The Permittee shall report to the

 Administrator any noncompliance which may endanger health or the
 environment. Information shall be provided orally within twenty-four

- (24) hours from the time the permittee becomes aware of the circumstances. This report shall include the following:
- a. Information concerning the release of any hazardous waste that may endanger public drinking water supply sources.
- b. Any information of a release or discharge of hazardous waste, or of a fire or explosion at the facility, which could threaten the environment or human health. The description of the occurrence and its cause shall include:
 - (1) Name, address, and telephone number of the owner or operator;
 - (2) Name, address, and telephone number of the facility;
 - (3) Date, time, and type of incident;
 - (4) Name and quantity of material(s) involved;
 - (5) The extent of injuries, if any;
 - (6) An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
 - (7) Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided to the Administrator within five (5) days of the time the Permittee becomes aware of the cir-

cumstances. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Permittee need not comply with the five (5) day written notice requirement if the Administrator waives that requirement and the Permittee submits a written report with fifteen (15) days of the time the Permittee becomes aware of the circumstances.

- 14. Other Noncompliance. The Permittee shall report all other instances of non-compliance not otherwise required to be reported above, at the time monitoring reports are submitted. The reports shall contain the information listed in permit condition Part I.H.13.
- 15. Other Information. Whenever the Permittee becomes aware that he or she failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Administrator, the Permittee shall promptly submit such facts or information to the Administrator.
- 16. Documents to be Submitted Prior to Operation. The Permittee shall submit completed financial assurance documents, completed liability insurance documents and the list of emergency coordinators in Section 7.31 of the application to the Administrator at least sixty (60) days before commencement of operation of the facility.

- 17. <u>Certification of Construction or Modification</u>. The Permittee may not manage hazardous waste at the facility until:
 - a. The Permittee has submitted to the Administrator by certified mail or hand delivery a letter signed by the Permittee and a Nevada registered professional engineer, stating that the facility has been constructed or modified in compliance with the permit; and
 - b. The Administrator has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or
 - c. The Administrator has either waived the inspection or has not within fifteen (15) days notified the Permittee of his intent to inspect.
- 18. Releases of Hazardous Waste. NDEP reserves the right to require the Permittee to conduct any investigation or mediation necessary to protect human health and the environment from past or present releases from solid waste management units. The Permittee shall notify NDEP, in writing, within 24 hours of discovery of a release of hazardous waste or hazardous constituents from a solid waste management unit, as defined pursuant to Section 3004(u) of the Resource Conservation and Recovery Act, or the existence of a previous solid waste management area.

PART II - GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

B. GENERAL WASTE ANALYSIS

The Permittee shall follow the procedures described in the attached waste analysis plan, Attachment 1. The Permittee shall verify its waste analysis as part of its quality assurance program, in accordance with current EPA practices (Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW 846, July 1982; 2nd ed.) or equivalent methods approved by the Administrator in accordance with procedures in 40 CFR §§260.20 and 260.21; and at a minimum maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations.

C. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection plan set out in the inspection schedule, Attachment 2. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by NAC 444.8885 and 40 CFR §264.15(c). Records of inspections shall be kept as required by NAC 444.8885 and 40 CFR §264.15(d).

D. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by NAC 444.8890 and 40 CFR §264.16. This training program shall follow the attached outline, Attachment 3. The Permittee shall maintain training documents and records as required by NAC 444.8890 and 40 CFR §264.16(d) and (e).

E. PREPAREDNESS AND PREVENTION

- Required Equipment. At a minimum, the Permittee shall equip the facility with the equipment set forth in the contingency plan, Attachment
 4, as required by NAC 444.8905 and 40 CFR §264.32.
- Testing and Maintenance of Equipment. The Permittee shall test and maintain the equipment specified in the previous permit condition and in Attachment 4 as necessary to assure its proper operation in time of emergency.
- 3. Access to Communications or Alarm System. The Permittee shall maintain access to the communications or alarm system as required by NAC 444.8910 and 40 CFR §264.34.
- 4. Required Aisle Space. At a minimum, the Permittee shall maintain aisle space as required by NAC 444.8915 and 40 CFR §264.35 and as shown on the plans and specifications, Attachment 5.
- 5. Arrangements with Local Authorities. The Permittee shall maintain arrangements with State and local authorities as required by NAC

444.8920 and 40 CFR §264.37. If State or local officials refuse to enter into or renew existing preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

6. <u>Water for Fire Control</u>. The Permittee shall provide water at adequate volume and pressure to supply water hose streams or automatic sprinkler systems as required by NAC 444.8905 and 40 CFR §264.32.

F. CONTINGENCY PLAN

- 1. <u>Implementation of Plan</u>. The Permittee shall immediately carry out the provision of the contingency plan, Attachment 4, and follow the emergency procedures described by NAC 444.8935, 444.8940, 444.8945, 444.8950 and 40 CFR §264.56 whenever there is an imminent or actual fire, explosion, or release of hazardous waste or constituents which threatens or could threaten human health or the environment.
- 2. <u>Copies of Plan</u>. The Permittee shall comply with the requirements of NAC 444.8925 and 40 CFR §264.53.
- 3. Amendments to Plan. The Permittee shall review and immediately amend, if necessary, the contingency plan, as required by NAC 444.8925 and 40 CFR §264.54.
- 4. Emergency Coordinator. The Permittee shall comply with the requirements of NAC 444.8930 and 40 CFR §264.56.

5. Emergency Procedures. The Permittee shall comply with the requirements of NAC 444.8935, 444.8940, 444.8945, 444.8950, and 40 CFR §264.56.

G. RECORDKEEPING AND REPORTING

- 1. Operating Record. The Permittee shall maintain a written operating record at the facility in accordance with NAC 444.8970 and 40 CFR §264.73(a) and (b)(1) to (8), inclusive.
- 2. <u>Annual Report</u>. The Permittee shall comply with all applicable annual report requirements of NAC 444.8980.
- 3. Required Reports. The Permittee shall comply with all applicable reporting requirements as described in Part I, Sections E and F, and Part II, Section G of this permit.

H. CLOSURE

- 1. <u>Performance Standard</u>. The Permittee shall close the facility as required by NAC 444.9005 and 40 CFR §264.111 and in accordance with the closure plan, Attachment 6.
- Amendment to Closure Plan. The Permittee shall amend the closure plan in accordance with NAC 444.9045 and 40 CFR §264.112(b) whenever necessary.
- 3. <u>Notification of Closure</u>. The Permittee shall notify the Administrator at least 180 days prior to the date he expects to begin closure, and

shall comply with NAC 444.9043 for any anticipated partial closure activities.

- 4. <u>Time Allowed for Closure</u>. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from site all hazardous waste and shall complete closure activities in accordance with the schedules specified in the closure plan, Attachment 6.
- 5. <u>Disposal or Decontamination of Equipment</u>. The Permittee shall decontaminate and/or dispose of all facility equipment as required by NAC 444.9010 and 40 CFR §264.114 and the closure plan, Attachment 6.
- 6. <u>Certification of Closure</u>. The Permittee shall certify that the facility has been closed in accordance with the specifications in the closure plan as required by NAC 444.9010 and 40 CFR §264.115.

I. COST ESTIMATE FOR FACILITY CLOSURE

- 1. <u>Annual Adjustment</u>: The Permittee must adjust the closure cost estimate for inflation within 30 days after each anniversary of the date on which the first closure cost estimate was prepared as required by NAC 444.9050 and 40 CFR §264.142(b).
- 2. Adjustment for Changed Conditions. The Permittee must revise the closure cost estimate whenever there is a change in the facility's closure plan as required by NAC 444.9050 and 40 CFR §264.142(c).

- 3. Availability. The Permittee must keep at the facility the latest closure cost estimate as required by NAC 444.9050 and 40 CFR §264.142(d).
- J. INCAPACITY OF OWNER/OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

 The Permittee shall comply with NAC 444.9065 and 40 CFR §264.148 whenever necessary.

K. REQUIRED NOTICES

- 1. <u>Notice to Administrator</u>. The Permittee shall notify the Administrator in writing at least four (4) weeks in advance of the date the Permittee expects to receive hazardous waste from a foreign source.
- Notice to Generator. When the Permittee plans to receive hazardous waste from an off-site source (except where the Permittee is also the generator), he must inform the generator in writing that he has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the operating record. (See permit condition Part II.G.1).
- L. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

 The Permittee shall comply with the requirements of NAC 444.8895 and 40 CFR §264.17.

M. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of NAC 444.8960, 444.8965, 444.8985 and 40 CFR §§264.71, 264.72, and 264.76.

N. FINANCIAL ASSURANCE FOR FACILITY CLOSURE

The Permittee shall demonstrate compliance with NAC 444.9055 and 40 CFR §264.143 by providing documentation of financial assurance, as required by NAC 444.9070 and 40 CFR §264.151, in at least the amount of the cost estimates required by permit condition Part II.I. The Permittee shall demonstrate compliance with this permit condition by submitting the required documentation to the Administrator at least 60 days before start-up. The Permittee's financial assurance shall be effective prior to operation of the facility. Changes in financial assurance mechanisms must be approved by the Administrator.

O. LIABILITY REQUIREMENTS

The Permittee shall comply with the requirements of NAC 444.9060 and 40 CFR §264.147 and the documentation requirements of NAC 444.9060 and 40 CFR §264.151, including the requirements to have and maintain liability coverage for sudden accidental occurrences in the amount of at least \$1 million per occurrence with an annual aggregate of at least \$2 million, exclusive of legal defense costs. The Permittee shall submit the required documentation to the Administrator at least 60 days before start-up. The Permittee's

liability coverage shall be effective before the Permittee's operation of the facility.

P. SECURITY

The Permittee shall comply with the security provision of NAC 444.8875 and 40 CFR $\S 264.14(b)$ and (c).

Q. STORAGE OF FACILITY-GENERATED SLUDGES

The Permittee shall not store facility-generated sludges, i.e., those sludges generated from treatment of wastes at the facility, for longer than ninety (90) days or in any manner other than in containers or tanks pursuant to Subparts I and J of 40 CFR Part 264, and in accordance with 40 CFR Section 262.34.

PART III - STORAGE IN CONTAINERS

A. WASTE IDENTIFICATION

The Permittee may store the following wastes in containers at the facility, subject to the terms of this permit.

EPA Hazardous Waste Code	Description
F006 .	Electroplating wastewater treatment sludge
F007	Spent Cyanide plating bath solutions
F008	Cyanide plating bath residues
F009	Spent Cyanide stripping/cleaning bath solutions
F011	Spent cyanide solutions from salt bath pot cleaning
F012	Cyanide quenching wastewater treatment sludges
F019	Wastewater treatment sludges from chemical conversion coating of aluminum
D002	Corrosive characteristic wastes
D003	Reactive characteristic wastes
D006	Cadmium - EP Toxic

EPA Hazardous Waste Code	Description
D007	Chromium - EP Toxic
D008	Lead - EP Toxic
D011	Silver - EP Toxic

B. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

C. PLACEMENT REQUIREMENTS

The Permittee shall store all hazardous waste containers (totes) in a closed condition and on the transport vehicles until such time as they enter the bermed unloading bay for sampling and emptying. In addition, totes shall remain on the transport vehicles until empty, to prevent the possibility of rupture or leak resulting from handling.

D. COMPATIBILITY OF WASTES WITH CONTAINERS

The Permittee shall assure that the ability of the container to contain the waste is not impaired as required by 40 CFR §264.172.

E. MANAGEMENT OF CONTAINERS

The Permittee shall manage containers as required by NAC 444.9085 and 40 CFR §264.173.

F. CONTAINMENT

The Permittee shall construct and/or maintain the containment system as required by NAC 444.9095 and 40 GFR §264.175 and the attached plans and specifications, Attachment 5.

G. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

The Permittee shall not locate containers holding ignitable or reactive wastes within 15 meters (50 feet) of the facility's property line.

- H. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES
 - 1. <u>Incompatible Wastes in Unwashed Containers</u>. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material.
 - 2. Storage of Incompatible Wastes. The Permittee shall store containers of incompatible wastes as indicated in the attached plans, Attachment 7, as required by NAC 444.9105 and 40 CFR §264.177(c).
 - 3. <u>Documentation</u>. The Permittee must document compliance with section (1) of this condition as required by 40 CFR §264.17(c) and place this documentation in the operating record (permit condition Part II.G.1.)

PART IV - STORAGE IN TANKS

A. WASTE IDENTIFICATION

The Permitte may store the following hazardous waste in tanks, subject to the terms of this permit:

	Tank No(s).	Waste Type	EPA Hazardous Waste No(s).	
а.	S-1 thru S-2 S-11 thru S-15	Cyanide	F007, F008, F009, F011, F012, D002, D003, D006, D007, D008, D011	
ь.	S-3 thru S-6	Alkaline	D002, D003, D006, D007, D008, D011, F006	
c.	S-7 thru S-10 S-16 thru S-23 S-25 thru S-28	Acid	D002, D006, D007, D008, D011 F006, F019	
			1 min	
d.	S-11.1	Acid/Alkaline Spillage	D002, D006, D007, D008, D011, F006, F019	

^{*} Note: there is no S-24

DESIGN AND CONSTRUCTION OF TANKS

The Permittee shall construct, modify, and maintain all tanks in accordance with the plans and specifications in Attachment 10. The Permittee shall maintain the minimum shell thickness specified below at all times to ensure sufficient structural strength.

	Tank No(s).	Minimum Shell Thickness (Inches)
a.	S-1 thru S-2	0.94
b.	S-3 thru S-6	0.94
с.	S-7 thru S-10	0.94
d.	S-11 and S-12	0.63
е.	S-13 thru S-20	0.63
f.	S-21 thru S-23 S-25 thru S-28 & S-11.1	0.63
g.	S-29A & S-29B	0.53

The maximum inventory of hazardous waste in storage/treatment at any one time is estimated to be 221,292 gallons, which shall be the maximum allowable storage volume.

PROTECTION FROM OVERFILLING

The Permittee shall prevent overfilling of tanks by the methods specified in Attachment 10 and summarized below.

	Tank No(s).	Minimum Shell Thickness (Inches)
a.	S-1 thru S-29	Liquid level indicator which signals
		when tank is full to prevent over-
		filling.

D. PROTECTION FROM CORROSION

The Permittee shall protect tanks from accelerated corrosion. erosion, and abrasion as specified in Attachment 10 and summarized below.

	Tank No(s).	Type of Protection
a.	S-1 thru S-8	Polypropylene
ъ.	S-9 thru S-10	Polyvinyl Chloride
c.	S-11 thru S-26	Polypropylene
đ.	S-27, S-28	PVC lined fiberglass
e.	S-29.1, 29.2	Polyethylene

SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

- Special Requirements. The Permittee shall not place ignitable or reactive waste in a tank unless the procedures described in Attachment 8 are followed.
- 2. <u>Documentation</u>. The Permittee shall document compliance with the above permit condition as required by NAC 444.8895 and 40 CFR subsection 264.17(c) and place this documentation in the operating record (permit condition Part II.G.1).
- 3. <u>Buffer Zones</u>. The Permittee shall comply with the buffer zone requirements for all tanks as listed in Table 2-2 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code. 1981".

F. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE

- 1. <u>Incompatible Waste Precautions</u>. The Permittee shall not place incompatible wastes in the same tank or place hazardous waste in a tank that previously held an incompatible waste or material unless the procedures specified in Attachment 9 are followed.
- 2. <u>Documentation</u>. The Permittee shall document compliance with the above permit condition as required by NAC 444.8895 and 40 CFR §264.17(c) and place this documentation in the operating record (condition Part II.G.1).

PART V - TREATMENT IN TANKS

A. WASTE IDENTIFICATION

The Permittee may treat the following hazardous waste in tanks, subject to the terms of this permit:

	Tank No(s).	Waste Type	EPA Hazardous Waste No(s).
a.	T-5, T-6, T-7	Cyanide, Sulfide, Alkaline	F006, F007, F008, F009, F011, F012, F019, D002, D003, D006, D007, D008, D011
b.	T-1, T-2, T-3,	Acid or Alkaline	D002, D006, D007, D008, D011 F006, F019
c.	T-4 D-1	Acid or Alkaline Sulfide & Cyanide	F006, F007, F008, F009, F011, F012, F019, D002, D003, D006, D007, D008, D011
d.	C-1 thru C-4	Clarifiers	All of the above codes *
е.	S-29.1/29.2	Neutralization & Final treatment	All of the above codes *
g.	H-1, H-2	Solids Hoppers	D002, D003, D006, D007, D008, D011, F006, F007, F008, F009, F011, F012, F019
h.	Dryers # 1 thru 5	Sludge Drying	All of the above codes *
i .	Pug Mill	Stabilization	All of the above codes *

^{*} Note: The "Derived From" rule requires these tanks to handle all waste codes.

B. DESIGN AND CONSTRUCTION OF TANKS

The Permittee shall construct, modify, and maintain all tanks in accordance with the plans and specifications in Attachment 10. The Permittee shall maintain the minimum shell thickness specified below at all times to ensure sufficient structural strength.

	Tank No(s).	<u>Minimum Shell</u>	Thickness (Inches)
a.	T-1, T-3	(Polypropylene)	0.47
Ъ.	T-2, $T-4$	(Fiberglass)	0.50
c.	T-5, $T-6$, $T-7$	(Rubber lined Steel)	0.25
d.	C-1, C-2	(Polypropylene)	0.94
е.	C-3, C-4	(Cross Linked Polyethylene)	0.20 Top sidewall 0.53 mid sidewall 1.22 12 "bottom
f.	H-1, H-2	(Steel)	0.25
g,	D-1	(Polypropylene) (Rubber lined steel)	0.47 0.25

C. PROTECTION FROM OVERFILLING

The Permittee shall prevent overfilling of tanks by the methods specified in Attachment 10 and summarized below.

	Tank $No(s)$.	Type of Control
a.	T-1 thru T-7	Liquid level indicator which signals
b.	C-1 Thru C-4	when tank is full to prevent over-
c.	D-1	topping.

D. PROTECTION FROM CORROSION

The Permittee shall protect tanks from accelerated corrosion, erosion, and abrasion as specified in Attachment 10 and summarized below.

Tank No.(s).

Type of Protection

a. T-1 thru T-7

Polypropylene, fiberglass, polyethylene, or rubber lined steel

b. C-1 thru C-4

Polyethylene or Polypropylene

c. D-1

Polypropylene, or rubber lined steel

d. H-1, H-2

Epoxy Coating

T. TREATMENT OF WASTES IN TANKS

The Permittee shall treat hazardous wastes as specified in the application, and in accordance with NAC 444.9115 and 444.9120 and 40 CFR subsection 264.191 and 264.192.

F. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

- 1. <u>Special Requirements</u>. The Permittee shall not place ignitable or reactive waste in a tank unless the procedures described in Attachment 8 are followed.
- 2. <u>Documentation</u>. The Permittee shall document compliance with the above permit condition as required by NAC 444.8895 and 40 CFR subsection 264.17(c) and place this documentation in the facility operating record (permit condition Part II.G.1).

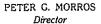
- SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE
 - Incompatible Waste Precautions. The Permittee shall not place incom-1. patible wastes in the same tank or place hazardous waste in a tank that previously held an incompatible waste or material unless the procedures specified in Attachment 9 are followed.
 - Documentation. The Permittee shall document compliance with the above 2. permit condition as required by NAC 444.8895 and 40 CFR §264.17(c) and place this documentation in the operating record (permit condition Part II.G.1).

	11/24/86	_
Date	Signed '	

Lewis H. Dodgion, Administrator
Division of Environmental Protection

LIST OF ATTACHMENTS

- 1. Waste Analysis Plan
- 2. Inspection Schedule
- 3. Training Outline
- 4. Contingency Plan
- 5. Storage Area Plans and Specifications
- 6. Closure Plan
- 7. Procedures for Handling Ignitable, Reactive, or Incompatible Waste in Containers
- 8. Procedures for Handling Reactive or Ignitable Wastes in Tanks
- 9. Procedures for Handling Incompatible Wastes in Tanks
- 10. Tank Plans and Specifications

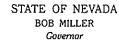


Waste Management

Mining Regulation and Reclamation

Administration

Air Quality





L. H. DODGION Administrator

.

(702) 687-4670

687-5065

687-4670

687-5872

Wastewater Treatment Services Water Permits and Compliance Water Quality Planning FAX

687-5870 687-4670 687-4670 885-0868

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

123 W. Nye Lane

Carson City, Nevada 89710

MAR 15 1991

March 11, 1991

Byron Bradd, P.E. Plant Manager ETICAM 2095 Newlands Dr. Fernley, NV 89408

Dear Mr. Bradd:

Enclosed please find one original of the Waste Blending Agreement which was signed on March 5, 1991 by this office. That is the effective date of the agreement. We have retained the other original of the Agreement for our files.

Should you have any questions, please contact me at (702) 687-5872.

Sincerely,

Daniel P. Gross, P.E.

Supervisor, Facilities Branch Bureau of Waste Management

DPG:klh

Enclosure

cc: Verne Rosse



January 15, 1991

Verne Rosse. P.E. Waste Management Bureau Nevada Division of Environmental Protection 123 West Nye Lane Capitol Complex Carson City, NV 89710

RECEIVED JAN 16 1991

Re: Waste Blending Agreement

ENVIRONMENTAL PROTECTION

Dear Mr. Rosse,

This letter constitutes the agreement between ETICAM and the Nevada Department of Environmental Protection (NDEP) defining limits on metal concentrations believed to be sufficient to constitute legitimate mixing and blending of product sludges for shipment to customers.

Additionally it is understood that this agreement is not part of the facility's Part B permit. The agreement is as follows:

"Product material will be blended before shipment to customers only if each batch representing a portion of the final blended mixture contains a metal, or other constituent used or utilized by or in the customer's process.

The material to be blended should contain at least 0.20 % (dry weight basis) of a metal, or other constituent used by the customers process, except that precious metals should be at least 0.10 ounces per ton (dry weight basis)."

Rhode Island Corporate/Sales: 410 South Main Street Providence, RI 02903 Telephone: (401) 831-7242 1-800-541-8673 FAX: (401) 831-7383

Rhode Island Plant: 25 Graystone Street Warwick, RI 02886 Telephone: (401) 738-3261 FAX: (401) 738-1073 EPA# RID 980906986

Nevada 2095 Newlands Dr. E. Fernley, NV 89408 Telephone: (702) 575-2760 1-800-648-9931 FAX: (702) 575-2803 EPA# NVD 980895338 Texas 3201 Lucius McCelvey Drive Temple, TX 76500 EPA# TXD 981903768

Illinois 3001 Highway #3 Granite City, IL 62040 EPA# ILD 981531643 Waste Blending Agreement Page 2

CHANGES IN AGREEMENT:

The variety of metals and materials which may be received and reclaimed is infinite, and the product material utilization and recovery will differ for each customer.

Additionally, the customers requirements are continually changing as the economy and metals market change. As a result, the above blending agreement is subject to future revisions based on changing conditions.

Both sides agree to negotiate in good faith regarding proposed changes with any ultimate dispute to be resolved by the Appropriate state administrative or judicial procedure.

March 5, 1991

January 15, 1991

Date of Agreement

By ETICAM

President

Title

By NDEP

Title

Management

Administration (702) 687-4670
Air Quality 687-5065
Mining Regulation and Reclamation 687-4670
Waste Management (702) 687-5872

STATE OF NEVADA :-

Water Permits and Compliance 687-4670
Water Quality Planning 687-4670
Wastewater Treatment Services 687-5870



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES DIVISION OF ENVIRONMENTAL PROTECTION

123 W. Nye Lane Carson City, Nevada 89710

January 24, 1991

JAN 29 1991

Byron B. Bradd, P.E. General Manager ETICAM 2095 Newlands Drive, East Fernley, Nevada 89408

Dear Mr. Bradd:

Your letter of November 19, 1990 requested approval to store the following waste codes either in the building or on the storage pad prior to processing until the pending permit modifications are processed: D002, D003, D006, D007, D008 and D010. You are herein authorized to store these waste codes in accordance with the conditions of my letter dated November 7, 1990. Additional conditions are as follows:

- 1. Approval to store D003 waste is only for cyanide and sulfide bearing wastes as defined in 40 CFR 261.23(a)(5).
- 2. All wastes must be stored so that incompatible wastes are not stored in the same area.

If you should have any questions on the above, please give me a call at 687-5872.

Sincerely,

Daniel P. Gross, P.E.

Supervisor, Facility Branch

Waste Management Bureau

Administration (702) 687-4670
Air Quality 687-5065
Mining Regulation and Reclamation 687-4670
Jaste Management (702) 687-5872

STATE OF NEVADA

Water Permits and Compliance 687-4670
Water Quality Planning 687-4670
Wastewater Treatment Services 687-5870



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES 14 1990 DIVISION OF ENVIRONMENTAL PROTECTION

123 W. Nye Lane
Carson City, Nevada 89710
November 7, 1990

Byron B. Bradd, P.E. General Manager ETICAM 2095 Newlands Drive, East Fernley, Nevada 89408

Dear Mr. Bradd:

Your letter of August 21, 1990 requested approval to store an additional 100 cubic yards of containerized F006 sludge either in the building or on the storage pad prior to processing until the pending permit modifications are processed. In subsequent discussions, you indicated that the facility could operate within a constraint of a total limit of 80 cubic yards. You are herein authorized to store 80 cubic yards of F006 hazardous waste sludge in either the building or on the pad with the following conditions:

- 1. The containerized waste must be inspected daily. If any containers are found to be not in good condition (e.g. rusting, apparent structural defects) or begins to leak (which includes crystallization of salts on the exterior of a bulk bag), ETICAM staff must note this on the inspection log and within one day either: transfer the hazardous waste to a container that is in good condition; process the waste; or overpack the container (e.g. in the case of a bulk bag place the bulk bag in a bin).
- The 80 cubic yard limit is not in addition to the 4000 drums of waste storage capacity presently granted interim status, but is included within that limit. For the purpose of determining equivalent volumes, one cubic yard is equivalent to 3.67 drums.

Also, if any revisions to are made to the interim status capacity (i.e. a new Part A with a lower limit is specified), the 80 cubic yard limit will still be included in the revised capacity.

Mr. Byron B. Bradd November 7, 1990 Page 2

If you should have any questions on the above, please give me a call at 687-5872.

Sincerely,

Daniel P. Gross, P.E.

Supervisor, Facility Branch Waste Management Bureau

cc: Verne Rosse Doug Martin Administration 702/885-4670 Air Quality 885-5065 Construction Grants 885-5870 STATE OF NEVADA



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

201 South Fall Street Carson City, Nevada 89710

August 1, 1989

Mr. Byron B. Bradd, P.E. General Manager ETICAM P.O. Box 1075 Fernley, NV 89408

Dear Mr. Bradd:

This letter is in response to your request to accept D006 or F006 waste in sludge form in portable containers on a temporary basis so as to evaluate sludge handling procedures in anticipation of seeking a permit modification. Your proposal was to temporarily store no more than 30 one-cubic yard bins (or equivalent capacity containers) at any one time either inside the building or on the storage pad. Containerized sludge would be introduced into the building via the loading dock in the rear of the building. This proposal is hereby approved.

This conditional approval shall cease once your permit modification is processed.

If you have any questions, please contact me.

Sincerely,

Daniel P. Gross, P.E. Environmental Engineer Waste Management Section Administration (702) 687-4670
Air Quality 687-5065
Mining Regulation and Reclamation 687-4670

(aste Management (702) 687-5872

STATE OF NEVADA



Water Permits and Compliance 687-4670
Water Quality Planning 687-4670
Wastewater Treatment Services 687-5870

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES DIVISION OF ENVIRONMENTAL PROTECTION

123 W. Nye Lane Carson City, Nevada 89710

September 10, 1990

Byron Bradd, P.E. Plant Manager ETICAM, Inc. P.O. Box 1075 Fernley, NV 89408

Dear Mr. Bradd:

Based on our meeting of September 7, 1990, the Division is rescinding its August 22, 1990 letter and reinstituting its June 23, 1988 letter, regarding the Division's determination that sludge generated at the ETICAM, Fernley facility may be classified as a product material destined for reclamation.

In addition to the conditions of the June 23, 1988 letter, ETICAM shall provide to the Division within a reasonable time for each shipment of product the following information:

- 1. Notice of the shipment and to what facility it was sent for further reclamation.
- 2. Documentation required by 40 CFR 261.2 (f):
 - a. Demonstrate that there is a known market or disposition for the material and that you meet the terms of the exclusion or exemption.
 - b. Provide appropriate documentation to demonstrate that the material is not a waste or is exempt from regulation. (A letter from the receiving facility that the material is used as an ore or other product.)
 - c. If appropriate, show that you have the necessary equipment to do the reclamation.

Another provision of the Federal regulations (40 CFR 261.1, (c), 8) requires that records be kept to show that 75% of the material be shipped off site or recycled. These records must be

Byron Bradd ETICAM, Inc. September 10,1990 Page 2

submitted annually.

Finally, to the best of ETICAM's ability, you must determine at the time of shipment that the material is being transported to a facility that actually is capable of recovering the value to the material.

If you have any questions, please contact me.

Sincerely,

Verne Rosse, P.E.

Chief

Waste Management Bureau

. . . .

. . .

cc:

Lew Dodgion Dave Wilma Dan Gross Alene Coulson BOB MILLER. Governor

STATE OF NEVADA

Administration (702) 687-4670 ning Regulation and Reclamation 687-4670 ste Management (702) 687-5872

Air Quality 687-5065



Water Permits and Compliance 687-4670 Water Quality Planning 687-4670 Wastewater Treatment Services 687-5870

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES DIVISION OF ENVIRONMENTAL PROTECTION

123 W. Nye Lane Carson City, Nevada 89710

August 22, 1990

Bryon Bradd, P.E. Plant Manager ETICAM, Inc. P.O. Box 1075 Fernley, NV 89408

Dear Mr. Bradd:

The Division is conducting a status review of the ETICAM, Inc. sludge, which is currently being handled as a product based on the Division letter dated June 23, 1988 (attached).

The Division hereby rescinds the letter of June 23, 1988 until further notice and directs ETICAM, Inc. to provide current detailed economic and environmental documentation which demonstrates that the sludge is a product with economic value.

Supervisor, contact Martin, Doug ETICAM, should Inc. Compliance/Enforcement Branch, Bureau of Waste Management at (702) 687-5872, to discuss the documentation and status of the ETICAM, Inc. sludge.

Questions regarding this letter may be directed to Doug Martin or me.

Sincerely,

Alene Coulson, EMS III

Compliance/Enforcement Branch Bureau of Waste Management

AC:kh

Enclosure

Dave Wilma cc:

U.S. EPA Region IX

Dan Gross

Administration 702/885-4670 Air Quality 885-5065 Construction Grants 885-5870

STATE OF NEVADA

Groundwater 702/885-4670 Waste Management 885-4670 Water Pollution 885-4670



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

201 South Fall Street Carson City, Nevada 89710

June 23, 1988

Richard T. Fox President ETICAM America, Inc. 25 Graystone Street Warwick, Rhode Island 02886

Dear Mr. Fox:

The Division of Environmental Protection has completed its review of the submittal provided by Ray Reott of Jenner and Block dated May 16, 1988 regarding the disposition of the sludge generated at the Fernley, Nevada facility.

Based upon this review and that of the submittal by . ETICAM on January 20, 1988, it has been determined that the sludge may be classified as a product material destined for reclamation, rather than a material destined for disposal. As such, the sludge is not classified as a hazardous waste.

As a result of this determination, the Division requests that ETICAM maintain documentation of the quantity of sludge produced and its corresponding assay to verify that the material contains economically recoverable amounts of the various constituents in the sludge. In addition, it is requested that the documentation contain the quantity of metals recovered by the smelter from each shipment of sludge.

ETICAM Page 2 June 23, 1988

Should you have any questions concerning this matter, please contact me.

Sincerely,

Thomas J. Fronapfel, P.E. Environmental Engineer

Thomas of Fronapfel

Waste Management Section

TJF:3

cc: Lew Dodgion Verne Rosse Byron Bradd Ray Reott Doug Martin

Kim Savage

Nahid Zoueshtiagh

TO: PLANT MANAGERS/SALES PERSONNEL

FROM: AUSTIN DONNELLY

DATE: SEPTEMBER 5, 1991

ITEM: Our new insurance agency, Frank B. Hall RI, will issue new advices of insurance for your customers.

ITEM: If a customer requests that they be "named insured", please notify me immediately. Our agency will not issue such warranties without my okay.

Regards.

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Milwaukee WI 53202-3195/AN & U (414) 271-9800 SUB-CODE	CO	ITICO A	el Union Fire Ir ny of Pittsburg			
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Eticam, Inc.		COMPANY C				
410 South Main Street Providence BI 02903	cc	COMPANY				
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CERTIFICATE HOLDER CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR Martin Marietta LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.						
P.O. Box 179 MS 9080 ATTN: Bill Bath Denver CO 80201 Authorized Representative AUTHORIZED REPRESENTATIVE AUTHORIZED REPRESENTATIVE			lean.			
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LIKA 594 N. Billy Mitchell Road ATTN: Scott Bullard	<u></u>		IND UPON THE CO			R REPRESENTATI



BOARD OF COUNTY COMMISSIONERS LYON COUNTY, NEVADA

ROLAND ADAMS
CHAIRMAN
DON CUMMINGS
MARYANNA HAMER
KEN HARVEY
KATHY JENSEN

(702) 463-3341 EXT. 221 FROM: FERNLEY 575-2168 SILVER SPRINGS: 577-2605 DAYTON: 883-9774

November 3, 1989

MOV 13 1989

Eticam P.O. Box 1075 Fernley, NV 89408

ATTN: Byron B. Bradd, P.E., General Manager

Dear Mr. Bradd:

The Board of Lyon County Commissioners, at a duly noticed public hearing on Friday, November 3, 1989, voted unanimously to APPROVE your application for a hazardous waste permit for an existing facility (pursuant to Lyon County Ordinance No. 328) on approximately 10.32 acres located in a portion of Sec. 8, T.20N., R.25E., MDB&M on East Newlands Drive in Fernley (APN 21-251-06), subject to the following conditions:

- 1) Provide necessary equipment and chemicals to local fire department, as well as training;
- 2) All operations in compliance with submission presented at Planning Commission hearing on October 10, 1989.

If you have any questions, please feel free to contact this office.

Sincerely,

BOARD OF LYON COUNTY COMMISSIONERS

MARIANNE ROGERS

Administrative Assistant

cc: Lyon County Planning Commission

Lyon County Assessor

Lyon County Building Department

Fernley Town Board

North Lyon County Fire Protection District

Lyon County Business License Officer



Lyon County Planning Commission

PHONE 702-463-3341 31 SOUTH MAIN STREET YERINGTON, NEVADA 89447

JOHN M. EVASOVIC PLANNING ADMINISTRATOR

SHANDA B. TURNER
ADMINISTRATIVE SECRETARY

APR 15 1991

April 11, 1991

ETICAM

Attn: Byron B. Bradd

P.O. Box 1075

Fernley, NV 89408

RE: SPECIAL USE PERMIT REVIEW

Dear Sir,

The Lyon County Planning Commission, at a duly noticed public hearing held on Tuesday, April 9, 1991, voted unanimously to EXTEND the following special use permits for one year subject to annual review:

ETICAM, INC. - SPECIAL USE PERMIT & HAZARDOUS WASTE PERMIT - Special use permit issued April, 1984 for a metal recovery and reprocessing business on property located in the SE¹/₄ of Section 8; T.10N., R.25E., MDB&M., in Fernley.

Hazardous Waste Permit issued issued October, 1989 for an existing facility (per Ordinance 328) on approximately 10.32 acres located in a portion of Section 8; T.20N., R.25E., MDB&M., on East Newlands Drive in Fernley. (21-251-06)

Sincerely,

LYON COUNTY PLANNING COMMISSION

Shanda B. Turner

Administrative Secretary

Νº

636

County of Lyon

Board of County Commissioners/Planning Commission

HAZARDOUS WASTE PERMIT

SPECIAL USE PERMIT

has been issued to	ETICAM , of
P.O. Box 1075	Fernley, NV 89408 for the purpose
of <u>metal recovery & reprocess</u>	sing business/ existing facility
in Lyon County for the period beginning	April 11 , 19 91
and ending until revo	oked, 19, subject to all approved
conditions.	
Chairman - Board of Commissioners	Winston M Jennant Chairman - Planning Commission

-NOT TRANSFERABLE-

NON-TRANSFERABLE 8-110010 PERMIT NUMBER: , 88. SINE OF NELVACE <u>_</u> State Fire Marshal Ö Nevada 2000 C 9 07/01/91 (e) EXPIRES: 12/31/91 ISSUED:

Permit Materials Hazardous

Name:

2095 NEWLANDS DRIVE E. FERNLEY, NV 89408 Address:

FERNEY

Location: 2095 NEWLANDS DRIVE

Fire Marshal's Regulations and Nevada Revised Statutes, The above named firm is hereby authorized to maintain Chapter 477. This permit remains the property of the Nevada State Fire Marshal and must be surrendered to the Special Hazard as provided under the Nevada State him upon his demand.

Nevada State Fire Marshal Representative

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ATTACHMENT 1

WASTE ANALYSIS PLAN

ETICAM Fernley, Nevada

3.10 INTRODUCTION

3.11 PLAN OBJECTIVE

The objective of this waste analysis plan is to specify a sampling, testing and evaluation system which will ensure that waste materials accepted at ETICAM are safely handled, stored and treated.

Specifically the plan is intended to:

- Prevent the mixing of incompatible wastes.
- Insure that incoming waste materials are stored in the appropriate areas.
- Prevent the acceptance of materials which ETICAM is not permitted to accept.
- Insure that accepted waste streams are adequately and properly treated.

Sampling and analytial procedures necessary to achieve these objectives are described in the following subsections.

3.12 GENERAL APPROACH

Waste analysis shall consist of two separate activities. Prior to the shipment of any hazardous waste to ETICAM, a chemical and physical analysis of a representative sample of the waste shall be or shall have been previously obtained. The analysis will contain all of the information which must be known to insure that Eticam is permitted to and capable of accepting the waste shipment.

The specific waste stream analysis information to be required is specified in the following sections.

A description of the generation process and the characteristics of the Rev: 24 Oct 1990

waste generated, based upon the generator's knowledge of the waste and upon laboratory analysis conducted by ETICAM will be required by the generator.

This analysis will include the following data:

Note: The rationale and test method for each requested parameter will be performed in accordance with SW 846, Standard Methods for Waste water Analysis, or by other modified methods approved by the NDEP.

These Parameters are as follows:

<u>Parameter</u>	<u>Rationale</u>	Test Method
Physical State at 25 degree C	Mechanical capacity of facility to handle material	VisualInspection
# of phases	Indicator of organics unacceptable to facility	Visual Inspection
Specific Gravity	Mechanical capacity of facility to handle material	Hydrometer
рН	Determination of appropriate storage and required neutralization	pH meter
Color	Confirmation of shipment and sample integrity	Visual or Frequency % abs.
Metals (Dissolved) Arsenic Barium Cadmium Chromium Lead Mercury Nickel Selenium Silver	Determination of toxicity and treatability	Atomic Absorption or ICP

Waste Analysis Plan

ETICAM Fernley, Nevada

Analysis for Arsenic, Mercury, and Selenium

The waste generator will submit a TCLP certification with all waste samples and shipments showing all TCLP constituents which are present. See section 3.80.

The sample and shipment will be analyzed for all metals specified in section 3.12 except for arsenic, mercury and selenium, which will be analyzed whenever the generator designates these as being present on the Waste Profile or TCLP certification form.

These parameters will also be analyzed whenever ETICAM has reason to suspect that they may be present through knowledge of the process generating the waste, or past experience with a particular customer.

Metals (Extracted if semisolid, solid, slurry, or sludge)

Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

Determination of toxicity and treatable

Parameter	Rationale	Test Method
<u> </u>	Nacionale	rest Method
Acidity/Alkalinity	Determination of treatability and toxicity	Titration
CN	Determination of treatability and toxicity	CN dístillation by ASTM standards
NH 3	Treatability	Ion Electrode
Total Organic Carbon	Organic Content	TOC Analyzer

<u>Organics</u>

Endrin Lindane Methoxychlor Toxaphene 24D 245TP Phenol PCB Determination
of acceptability
If stated as being
present by the generator

HPLC

The sample shall be obtained by the generator in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," (SW 846), U. S. Environmental Protection Agency, Office of Solid Waste, Washington, DC 20460.

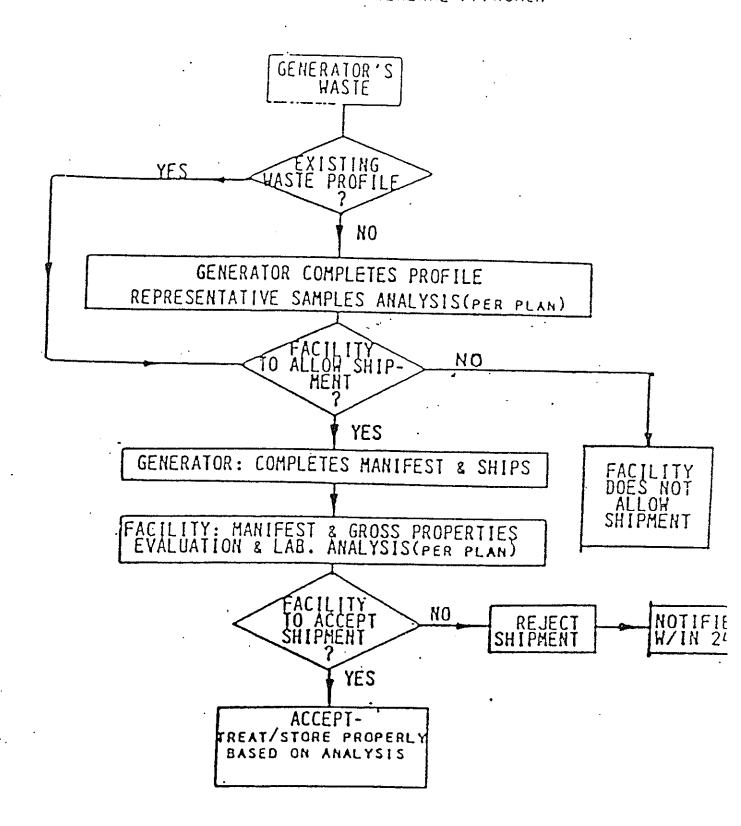
Then, upon receipt of the waste shipment at ETICAM, but prior to acceptance and offloading, ETICAM will sample and analyze a

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Then, upon receipt of the waste shipment at ETICAM, but prior to acceptance and offloading, ETICAM will sample and analyze a representative sample of the waste to verify the original analysis information (obtained prior to shipment), and to insure that the material is appropriate for storage and treatment at ETICAM. This will consist of at least a gross properties evaluation and comparison previous laboroatory analysis for specific parameters as specified in this plan. Wastewaters accepted for treatment may also be subjected to bench scale tests at the time of initial laboratory analysis. The bench scale analysis to be performed may include but not be limited to the following:

Parameter	Test			
Cyanides	Oxidation using NaOCl			
Chromates	Reduction using FeCl ₃			
Heavy metals	Coagulation using floculants			
Acids	Neutralization using NaOH or CaO			
Alkalines	Neutralization using HCl			
Chelates	Destruction using proprietary technologies			
Sludge Generation Analysis for carbonates and sulfates				
metal recovery	Electrowinning techniques .			

Figure 3.1 illustrates the above approach and the fact all new sources and wastes from patron suppliers who have altered their generation process will be subject to more details analysis requirements than those waste sources routinely accepted. Generators who have altered their procedures or waste characteristics will be required to



notify ETICAM of such in writing at least 72 hours in advance of any <u>new</u> shipment. Waste shipments from a regular customer, who already supplied the necessary information on the generation process and waste characteristics, will typically only be subject to the sampling and analysis conducted upon receipt at the facility.

[Please note: Chemical and physical properties of the waste materials to be accepted at ETICAM are provided in Section 2.30. Table 2.1 lists the typical properties of the virgin materials of the waste types to be accepted.]

3.20 ANALYSIS PRIOR TO WASTE SHIPMENT

3.21 NEW SOURCES OR MODIFIED SOURCES

Before ETICAM will allow shipment of waste material from a new or "modified" source, ETICAM will obtain the information indicated on the generator's waste profile sheet Figure 3.2 and shall require representative samples of the waste.

Modified source refers to a generator who has been shipping to ETICAM but whose generation process has been modified in any way which alters the waste characteristics.

3.21.1 GENERATOR WASTE PROFILE SHEET

All clients of ETICAM will be required to complete the following Generator Waste Profile Sheet for all hazardous waste streams to be shipped to ETICAM.

GENERATOR WASTE PROFILE FORM

PURPOSE/DIRECTIONS: Please complete one of these form's for each separate weste. Complete all of the information blocks. Be accurate and thorough with your responses. This information is necessary for us to determine whether we can awfully and safely store and treat your waste streem. Information you provide will be held in strictest confidence.* Please make a copy for your records.

	Date	
Address	EPA ID#	 .
Type of Industry or Business	·	
Contact Person		-
Phone Number		•
		·
A. Type of Waste	*	
Please check appropriate boxes.	<u> </u>	
- Wastewater (Including Studg - ACID	es}	
·: - ALKALI (Free of Cyani	de) ·	
, (or oyanı		
- CYANIDE BEARING	· c	
		· · · ·

Quantity	Frequency
- Tote Shipme	ent - or Bulk Shipment
RCRA Waste (Code
PHYSICAL STATE @	
Liquid Solid Sludge Multi Phase	Slurry Single Phase Spec. Grav.
Total Metals	Extractable Metals (If sludge or slurry)
As Mg/L Ba Mg/L Cd Mg/L Cr Mg/L Cu Mg/L Fe Mg/L Pb Mg/L Hg Mg/L Ni Mg/L Se Mg/L Ag Mg/L	As
Acidity/Alkalinity CN NH ₃	
co- so ₄	Yes No No Yes No
Toxic Organics	Yes No
Endrin	YesNo
Lindane	YesNo
Methoxychlor	YesNo
Toxaphene	Yes No
24D	YesNo
245TP	YesNo
Phenol	YesNo
PCB	YesNo

B. Waste Description

R:

C) Process Generating Waste Stream:
Please Describe:
•
Please describe on separate sheets all sampling and
analytical procedures used if the procedures are in
variance with those described in Standard Methods for
the Examination of Water and Waste Water, 16th Edition.
Does this waste stress contain any chlorinated solvents? No Yes
If yes, specify
Does this waste stream contain any PCB's? No Yes
Please complete all information blocks as accurately as possible. If information is unavailable and not applicable, please contact ETICAM laboratory director to determine if the information block may be filled with the designation NA for "not applicable".
I certify that I have personally examined and am familiar with the information submitted and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, and complete.
Generator's Authorized Signature
Title Date
Note: Please attach Material Safety Data Sheets where available.

As a minimum for all waste streams, the generator must provide the following regarding characteristics of each waste stream:

- 1) sample of said waste stream
- 2) written and signed statement of how sample was taken and who took said sample
- written and signed description of process generating said waste stream

For those generators which are regular clients of ETICAM an who have not modified their generation process, additional waste profile sheets and representative samples will be required only when the analysis indicated in 3.30 reveals significant discrepancies or where ETICAM, at its discretion, requests such information, but no less than once every 10 shipments.

3.30 ANALYSIS UPON RECEIPT OF WASTE SHIPMENT ALL SOURCES

At this stage, ETICAM will have received a completed manifest, a waste profile sheet and a representative sample (at least on initial waste shipment which ETICAM will have analyzed as indicated in the preceeding section) for the waste material arriving at the facility. The information provided will then be verified as described below.

3.31 MANIFEST EVALUATION

All incoming materials must be accompanied by a manifest filled out in accordance with applicable state and federal rules and regulations.

An initial review of the manifest will be made to determine whether or not differences exist between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste ETICAM actually receives. ETICAM personnel will look for significant manifest discrepancies which include, but are not limited to:

- variations greater than 10 percent by volume for bulk shipments;
- . variations in piece count for batch waste, and;
- stratification in a sample jar not otherwise expected.

Significant discrepancies in type or obvious differences which can be detected by inspection or analysis.

In the event that a significant discrepancy exists, ETICAM personnel will attempt to reconcile the discrepancy with the waste generator or transporter. During the period of attempted reconciliation (not to exceed 24 hours) the shipment and the vehicle on which it was transported will be quarantined at the generator's expense in a parking area designated on the site plan.

In the event of any significant manifest discrepancy, the Nevada Division of Environmental Protection (NDEP) will be notified within 24 hours.

If the manifest adequately describes the material from a patron supplier, shipment analysis will continue as follows:

Waste Analysis Plan

ETICAM Fernley, Nevada

3.32 GROSS PROPERTIES EVALUATION

A representative sample will be obtained from all incoming bulk or container shipments (each container) in accordance with the sampling procedures specified in Section 3.50 and analyzed prior to unloading into ETICAM's storage tanks, or placed into container storage when authorized. During this procedure, the vehicle will remain in ETICAM's off-loading sampling bays.

The sample will be drawn into a 500 ml glass or plastic jar labeled with the following information:

- . Generator's Name
- . Sample Number
- . Manifest Number
- . Date and Time Collected
- . Name of Collector
- . Signature of Collector

The sample will then be transferred to the lab and allowed to settle after which time a visual inspection is made to detect any gross inconsistency (e.g., stratification of a separate layer, other than sludge or water in the jar might indicate the presence of a foreign material).

All samples will be evaluated for the following parameters:

<u>Parameter</u>	Test Method
Material Phase (solid/liquid/ semi-solid)	Visual
Layering	Visual
Colors absorption at 3 frequencies for comparison with existing waste profile	Photometer, or metals analysis See Section 3.12
pH, aqueous only	pH Meter

GROSS PROPERTIES EVALUATION

.A representative sample will be obtained and analyzed from incoming bulk or tote shipments (each tote) accordance with the SAMPLING PROCEDURES SPECIFIED in Section 3.5 prior to discharge of the shipment from the vehicle into ETICAM's storage tanks. During this time, said vehicle will be retained in ETICAM's offloading sampling bays.

Said sample will be drawn into a 500 ml glass jar with the following information:

- . Generator's Name
- . Sample Number
- . Manifest Number
- . Date and Time Collected
- . Name of Collector
- . . Signature of Collector

The sample will then be transferred to the lab and allowed to settle after which time a visual inspection is made detect any gross contamination (e.g., stratification separate layer, other than sludge or water in the jar, might be indicative of the presence of a foreign material).

bφ.; ;λ.::

Test Material

All samples will be evaluated for the following parameters:

• • •	Parameter	Test Material
1 T	Material phase (solid/Liquid/ semi-solid)	Visual
	. Layering	Visual
	Colerometric absorption at 3 frequencies for comparison with existing waste profile	Photometer .
	. pH, aqueous only	· pH meter

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Parameter

Test Material

. Specific Gravity

Hydrometer

. Presence of free cyanide

Colgrometric

. Presence of chromates

Colérometric

This information will be compared with that indicated on the waste profile sheet and with that of prior representative sample analyses. If discrepancies are noted which suggest that ETICAM is not receiving the waste material represented, a representative sample of the waste shall be submitted for detailed analysis to clarify the discrepancy. If the discrepancy can not be clarified, the shipment will be rejected and NDEP will be so notified within 24 hrs of rejection.

3.50 SAMPLING METHODOLOGY

This section includes descriptions of procedures to be followed when sampling bulk and tote shipments. Following sampling, samples are to be immediately labeled with the following information:

Name of collector

Lynthum of Gilberton

Date and time of collection

Name of Generator

Manifest Number

Sample identification number

All pertinent sample information shall be recorded in a log book. The information shall include sample analysis and testing. Only trained qualified personnel are to conduct sampling.

3.51 SAMPLING QUANTITIES

A 2-L sample will be collected for physical and chemical analysis. For certain determinations, larger samples may be necessary. See Figure 3.3 for volumes required.

3.52 PRESERVATION METHODS

Complete and unequivocal preservation of samples, whether domestic wastewater, industrial wastes, or natural waters, is a practical impossibility. Regardless of the sample nature, complete stability for every constituent never can be achieved. At best, preservation techniques only retard chemical and biological changes that inevitably continue after sample collection. Changes that take place in a sample are either chemical or biological.

Some determinations are more likely than others to be affected by sample storage before analysis. Certain cations are subject to loss by adsorption on, or ion exchange with, the walls of glass containers. These include aluminum, cadmium, chromium, copper, iron, lead, manganese, silver, and zinc, which are best collected in a separate clean bottle and acidified with nitric acid to a pH below 2.0 to minimize precipitation and adsorption on container walls.

pH may change significantly in a matter of minutes. Determine temperature and pH immediately.

Cyanide may be lost through oxidation. Color, odor, and turbidity may increase, decrease, or change in quality. Sodium, silica, and boron may be leached out of the glass container. Hexavalent

chromium may be reduced to chromic ion.

The foregoing discussion is by no means inclusive. Clearly it is impossible to prescribe absolute rules for preventing all possible changes, but to a large degree the dependability of water analyses rests on the experience and good judgment of the analyst.

a. <u>Time Interval Between Collection and Analysis</u>: In general, the shorter the time that elapses between collection of a sample and its analysis, the more reliable will be the analytical results. For certain constituents and physical values, immediate analysis in the field is required.

It is impossible to state exactly how much elapsed time may be allowed between sample collection and its analysis; this depends on the character of the sample, the analyses to be made, and the condition of storage. When the interval between collection and analysis is long enough to produce changes in either the concentration or the physical state of the constituent to be measured, follow the preservation practices given in Figure 3.3.

b. <u>Preservation Methods</u>: Sample preservation is difficult because almost all preservatives interfere with some of the tests. Immediate analysis is ideal. Storage at low temperature (4°C) is perhaps the best way to preserve most samples until the next day. Use chemical preservatives only when they are shown not to

interfere with the analysis being made. When they are used, add them to the sample bottle initially so that all sample portions are preserved as soon as collected. No single method of preservation is entirely satisfactory; choose the preservative with due regard to the determinations to be made. All methods of preservation may be inadequate when applied to suspended matter. Because formaldehyde affects so many analyses, do not use it.

Methods of preservation are relatively limited and are intended generally to retard biological action, retard hydrolysis of chemical compounds and complexes, and reduce volatility of constituents.

Preservation methods are limited to pH control, chemical addition, refrigeration, and freezing. Table Fig. 3.3 lists preservation methods by constituent.

REAGENT WATER (TENTATIVE) *

One of the most important aspects of analysis is the preparation of reagent-grade water to be used for dilution of reagents and for blank analysis. In general, reagent-grade water implies distilled or deionized water with no detectable concentration of the compound or element to be analyzed at the detection limit of the analytical method. The quality of the water required is related directly to the analysis being made. Requirements for water quality may differ for organic, inorganic, and microbiological testing. This section provides general quidelines for the preparation of reagent water.

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3-10c



^{*}Approved as Tentative by Joint Editorial Board, 1985.

1. <u>Distilled Water</u>

Prepare reagent-grade distilled water by distilling water from an all-borosilicate-glass or fused-quartz or tin still. To remove ammonia from distilled water distill it from an acid solution. Remove \mathfrak{CO}_2 by boiling the water for 15 min. and cooling rapidly to room temperature, exclude atmospheric \mathfrak{CO}_2 by using a tube containing soda lime or a commercially available \mathfrak{CO}_2 -removing agent. Boiling the water may add other impurities to it by leaching from the container used for boiling. Verify the quality of distilled water by measuring conductivity, which should be <1.0 µmho/cm.

Deionized Water

Prepare reagent-grade deionized water by passing tap water through a mixed-bed exchanger, consisting of strong anion and strong cation resins mixed together. When the system does not run continuously, discard the first bed volume of product water from the ion-exchange bed. Water conductivity should be <0.2 \(\textit{pmho/cm}. \)

3. Purification of Water for Organics Analysis

The most common technique for removing organics from reagent water is passage of the water through a bed of granular activated carbon. To achieve the lowest level of organic contamination do this following deionization, but note that the conductivity of the water may be degraded.

4. Reagent Water Quality

Listed below are several guidelines for reagent water quality.

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Use Type I water in test methods requiring minimal interference and maximum precision and accuracy. When analyses are to be conducted near the detection limit of the method, check Type I water at the time of use to verify quality. Type II water may be used for general laboratory testing. Type III water may be used for glassware, and as feedwater for production of higher-grade waters.

Type I water cannot be stored without significant degradation; produce it continuously and use it immediately after processing. Type II water may be stored, but keep storage to a minimum and provide quality consistent with the intended use. Store only in materials that protect the water from contamination, for example, TFE and glass for organics analysis or plastic for metals. Store Type III water in materials that protect the water from contamination.

Any method of preparation of reagent water is acceptable provided that the requisite quality can be met. Improperly maintained systems actually may add contaminants. Reverse osmosis, distillation, and deionization all can produce reagent water when used in the proper arrangement. Ultrafiltration and/or UV treatment also may be employed as part of the process.

Type I reagent water typically is prepared by distillation of feed water having a maximum conductivity of 20 umhos/cm (25°C) followed by polishing with mixed-bed deionizers and passage through a 0.2 um membrane filter. The mixed beds typically add small amounts of organic matter to the water, especially if they are fresh beds. Resistivity of Type I water should be

>10 megohm-cm(25°C), measured in-line. Resistivity measurements will not detect non-ionized or weakly ionized contaminants or provide an accurate assessment of ionic contaminants at the microgram-per-liter level. Thus, make separate measurements of such constituents as TCC, SiO₂, and bacterial counts.

Type II water typically is produced by distillation or deionization. Resistivity should be >1 megohm-cm (conductivity <1 jmho/cm at 25°C). Observe the same precautions about measurements of other contaminants.

Type III water should have a minimum resistivity of 0.1 megohm-cm (conductivity <10 µmho/cm at 25°C).

Other contaminants in reagent water are listed below, but these are not intended to be absolute specifications.

pH cannot be measured accurately on Type 1 or Type II water without contaminating it. Measure other constituents as required for individual tests.

For details on preparing water for microbiological tests see Part 900.

Quality Parameter	Type I	Type II	Type III
Bacteria (CFU/100 mL)	<100	<1000	< 10 000
рH	NA	NA.	5-7
Resistivity (megohn-cm at 25°C)	10	1	0.1
Conductivity (umho/cm at 25°C)	< 0.1	1	10
SiO ₂ (mg/L)	<0.01	<0.1	4 1
Total solids (mg/L)	0.1	1	· -5
Total organic carbon (mg/L)	<0.05	< 0.2	< 1

P, G P, G D D D D D D D D D D D D D D D D D D D	Nitrate Nitrate 4 minite				
P, G P, G P, G P, G Analyze as soon as possible or refrigerate; or freeze at -20°C Analyze as soon as possible or Refrigerate; and Hi,SO, to pil <2 Analyze as soon as possible; refrigerate C, TFE-lined C, TFE-lined G, TFE-lined G, BOD bottle B, G Analyze famediately Tiration may be delayed after Refrigerate; and 100 mg Na,S,O,/L If Tesidual chlorine present Analyze immediately Tiration may be delayed after Refrigerate; and lifter Analyze immediately Tiration may be delayed after Refrigerate, do not freeze B, G Analyze immediately Analyze immediately or use was seal B, G Analyze immediately or use was seal Refrigerate, do not freeze Refrigerate, do not freeze Refrigerate Refrigerate Analyze as soon as possible; refrigerate Analyze as soon as an analyze as soon as an analyze as soon as an analyze as an an analyze as an an an analy		•.	And H, SO, to pH < 2, refrigerate	48 h/48 h	
Analyze as soon as possible or G(S), TFE-lined G(S), TF			refrigerate; or freeze at -20°C	none/28 d	
G(S), TFE-lined G(T), G(S) G(T) G(T	न्तर्वक्री		Analyze as soon as possible or refrigerate; or freeze at -20°C	none/48 h	
Refrigerate; add 100 mg Na,S,O,/L if P, G G, TFE-lined G, TFE-lined So Refrigerate, add 11,SO, 10 pH < 2 Refrigerate, add 11,SO, 10 pH < 2 Refrigerate, add 100 mg Na,S,O,/L if Refrigerate, add 100 mg Na,S,O,/L if Refrigerate, add 100 mg Na,S,O,/L if Analyze immediately Titration may be delayed after acidification Analyze immediately G(A) IOO Analyze immediately For dissolved phosphate filter immediately For dissolved phosphate filter Inmediately refrigerate, freeze at Analyze immediately or use was seal Refrigerate, do not freeze Refrigerate, do not freeze Refrigerate, do not freeze Refrigerate, do not freeze Refrigerate, add 4 drops 2N zine Refrigerate, 100 mL Refrigerate, abon as possible; refrigerate Refrigerate abon as possible; refrigerate Analyze immediately Refrigerate Analyze immediately	upuno	•	Keingerate; add H ₁ SO ₂ to pH <2 Analyze as toon as possible; refrigerate	7 d/28 d	•
Cap Gap G, BOD bottle G, BOD bottle G, BOD bottle G, Bod bottle G, Was seal C, was seal	by purse	•	Refrigerate; add 100 mg Na, S, O, /L If	7 d/7 d	
Analyze immediately Titration may be delayed after acidification Analyze immediately Analyze immediately For dissolved phosphate filter immediately; refrigerate; freeze at -10°C Analyze immediately or use was seal Refrigerate Analyze as soon as possible; refrigerate Analyze immediately	and trap Oxygen, dissolved: Electrode		Reingerate, add H,5O, to pH <2 Reingerate; add 100 mg Nu,5,O,/L if residual chlorine present	*/28 d 7 d/14 d	
Analyze immediately Analyze immediately For dissolved phosphate filter immediately; refrigerate; freeze at —10°C Analyze immediately or use was seal Refrigerate, do not freeze Refrigerate Refrigerate Refrigerate Refrigerate Refrigerate Analyze as soon at possible; refrigerate Analyze immediately		D	Analyze immediately Titration may be delayed after acidification	0.5 h/1 h 8 h/8 h	
ror dissolved phosphate filter immediately; refrigerate; freeze at 10°C Analyze immediately or use was seal Refrigerate, do not freeze Refrigerate Refrigerate Refrigerate Refrigerate Refrigerate Refrigerate Analyze as soon as possible; refrigerate Analyze immediately		1 2	Analyze immediately Analyze immediately	0.5 h/-	
Analyze immediately or use was seal Refrigerate, do not freeze Refrigerate Refrigerate Refrigerate Refrigerate add 4 drops 2.N zine acetate/100 mL Analyze as soon as possible; refrigerate Analyze immediately			For dissolved phosphate filter immediately; refrigerate; freeze at —10°C.	48 h/48 h	
Refrigerate Refrigerate Refrigerate add 4 drops 2N zine Rectate/100 mL Analyze as soon as possible; refrigerate Analyze immediately	2	3 1	Analyze immediately or use wan seal defrigerate, do not freeze	6 months/	•
Analyze as soon as possible; refrigerate Analyze immediately		118	tefrigerate tefrigerate efrigerate; add 4 drops 2N zinc acetate/100 mr	7 d/7-14 d 28 d/28 d 28 d/28 d	•
	,	§ 1 1	nalyze as soon as possible; refrigerate	24 h/	

* See test for additional details. For determinations not listed, use glass or plastic containers; preferably refrigerate during storage and analyze as soon as possible. Refrigerate

† Environmental Protection Agency, Proposed Rubes, Federal Register 44; No. 244, Dec. 18, 1979.

Standard Land

3.53 PREVENTION OF CROSS CONTAMINATION

Samples will be transported and stored in jars with tightly closed screw lids to prevent cross contamination. Each jar will be carefully washed before use and rinsed three times with sample solution before sample is taken.

3.54 SAMPLING OF VACUUM TRUCKS

The California Department of Health (1980) describes the general sampling procedure:

Sampling a vacuum truck requires the person collecting the sample to climb onto the truck and walk along a narrow catwalk. In some trucks it requires climbing access rungs to the tank hatch. These situations present accessability problems to the sample collector, who must usually wear full protective sampling gear. Preferably two persons should perform the sampling: one person should do the actual sampling and the other should hand the sampling device, stand ready with the sample container and help deal with any problems. The sample container should position himself to collect sample only after the truck driver has opened the tank hatch. The tank is usually under pressure of vacuum.

- 1. a. Let the truck driver open the hatch.
 - b. Using protective sampling gear, assume a stable stance on the tank catwalk or access rung to the hatch.
 - c. Collect a sample through the hatch opening.
 - d. If the tank is not horizontal, take one additional sample each from the rear and front clean out hatches and combine all three samples in one container.
 - e. When necessary, carefully take sediment samples from the tank through the drain spigot.
- 2. Secure the stopper in the bottle orifice.

- 3. Lower the bottle to the bottom of the tank. Give the cord a quick jerk to disengage the stopper. Bubbles will slowly rise to the surface indicating that the stopper is off and the bottle is filling. Once bubbling stops, slowly raise the bottle. Pour entire contents into a clean bucket.
- 4. Follow directions in Step 3, but lower to approximately the middle of the tank. Pour contents into the sample bucket.
- 5. Follow directions in Step 3, but position sampler near the liquid surface. Pour contents into the sample bucket.
- 6. Swirl the bucket contents to destratify, and pour liquid into a clean glass sample bottle.
- 7. Cap the sample container attach label and seal; record in field log book.
- 8. Clean sampler on-site. Store used rags in plastic bags for subsequent disposal.
- 9. Analyze sample in accordance with Waste Analysis Plan.

3.60 OUALITY ASSURANCE PLAN

The following quality assurance plan shall be instituted to ensure that waste analysis data is precise, accurate, and representative. The plan covers quality control of sampling, analysis, and data management.

In order to insure that sampling is being performed in accordance with the appropriate procedures; sampling procedures will be included in the training program

and ETICAM management will actively supervise sampling least monthly with each employee performing this task.

assure that analysis by on-site and outside laboratories is accurate, ETICAM will obtain copies of available and/or federal laboratory state certifications and will, at least annually, split samples between laboratories as a check on their analysis accuracy. Analysis conducted on-site by ETICAM will be duplicated at a qualified laboratory at least once every six months.

All waste analysis data will be maintained on-site for least three years from the date of at acceptance. Management will review waste analysis records weekly to assure they are ledgible properly maintained.

As a check on overall treatment efficiency and therefore, upon the entire operation, the final effluent will be sampled and analyzed in accordance with all federal, state, and local pretreatment standards. Treated effluent shall be analyzed for compliance with the following parameters:

^{1.} pН

^{5.} copper

^{9.} silver

cyanide 3. lead .

^{6.} cadmium

^{10.} iron

^{7.} nickel

^{- 11.} nitrite -

^{4.}

^{12.} free clorine

chromium zinc 8.

^{- 13.} settleable solids

3.70 ANALYSIS METHODS

Analysis provided for in the preceding sections shall be conducted in accordance with the standard methods described in the following reference sources:

- 1. US EPA, 1982, <u>Test Methods for Evaluating Solid Waste Physical/Chemical Methods</u>. <u>SW-846</u>, 2nd Edition. Office of Solid Waste and Emergency Response, Washington, D.C.
- 2. American Public Health Association, 1975, Standard Methods for the Examination of Water and Wastewater, American Public Health Association, Inc., 14th Edition, 1193 pp. (or the most recent edition).
- 3. 40 CFR part 261 Appendix I, Appendix II, and Appendix III.

231.11

3.80 WASTE ANALYSIS FOR LAND DISPOSAL RESTRICTIONS

Waste generators are required to submit a certification of the constituents of each waste shipment which determines the applicable waste codes, and that the waste meets or does not meet treatment standards specified in federal Land Disposal Restrictions.

Any waste byproduct from the treatment or reclamation of wastes received will be evaluated to determine what treatment standards apply to the waste, and weather or not the waste meets the treatment standards. Some landfill operations are required to test each batch of waste received, and ETICAM may elect not to perform the Toxicity Characteristic Leaching Procedure (TCLP) in this case, since the landfill laboratory has the final word based on their analysis. (The waste will be certified as not meeting the LDR standards in these cases). Note that these landfill operations have stabilization systems designed to treat land restricted wastes prior to depositing the waste into the landfill.

ETICAM will perform and document the TCLP test when the waste is certified as meeting LDR standards when it is sent to a landfill.

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Metal concentrates produced for shipment to smelters or other production or reclamation operations do not require this certification, since they are not destined for disposal.

LDR TREATMENT STANDARDS

The tables included in this plan, "Constituent Concentrations In Waste Extract, Table CCWE", published in the federal register, list the applicable waste codes and show the treatment standards required for disposal in a landfill.

STABILIZATION PROCESS

Waste materials which have been stabilized, or are expected to pass the LDR standards after treatment will be sampled and analyzed for TCLP constituents based on the waste codes shown in the tables.

The waste characterization procedures in this plan will be carried out to obtain detailed analysis of a representative sample of the prohibited waste to be treated, and contain all information necessary to treat the waste in accordance with the requirements of the Land Ban Restrictions.

Waste shipped off site for landfill disposal will include a RCRA Land Disposal Restriction Notification, included in this plan.

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ETICAM CERTIFICATION OF WASTE STATUS BY TCLP

GENERATOR:
ACCPT. NO WASTE CODES:
AT THE POINT OF GENERATION, THE WASTE IDENTIFIED BY THE ABOVE REFERENCED ACCEPTANCE NUMBER EXHIBITS THE FOLLOWING CHARACTERISTIC CONSTITUENTS AS DETERMINED BY THE TCLP METHOD, AND AS REQUIRED ON SEPTEMBER 25, 1990 IN ACCORDANCE WITH THE FEDERAL REGISTER VOL. 55, NO. 61 DATED MARCH 29, 1990:
NONE AS LISTED IN 40 CFR PART 261 SUBPART C FOR DOO4 THRU DO43 CHARACTERISTIC OF TOXIC CHARACTERISTIC LEACH PROCEDURE TOXICITY (TCLP) FOR THE FOLLOWING CONSTITUENTS ONLY:
ARSENC (DODA)
CERTIFICATION I certify that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste exhibits only characteristics as marked above from 40 GFR Part 261 Subpart C (as effective on 9/25/90). I believe that the information I am submitting is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
Printed Name Date
Signature Title 09/25/90

FINAL TREATMENT STANDARDS FOR FIRST- AND SECOND-THIRD WASTES

-:-

. ·		Nonwasia	water		•
Hazardous waste description	Constituents of concern	Total com- position, mg/kg ¹	TCLP, mg/L¹	Wastewater, total composi- tion, mg/L	Effective date
F006 — Wastewater treat- ment sludges from elec- tropiating operations	Cadmium Chromium (total) Lead Nickel Silver Cyanides (Total) Cyanides (Amenable)	590 30	0.066 5.2 0.51 0.32 0.072	†	8/8/88 for metals: 7/8/89 for cyanides: 6/7/89 for injection of nonwaste- waters
F007 — Spent cyanida plat- ing bath solutions from electropiating operations.	Cadmium Chromium (Totai) Cyanides (Totai) Cyanides (Amenable) Lead Nickel Silver	590 30	0.066 52. ———————————————————————————————————	0.32 1.9 0.10 0.04 0.44	7/8/89; 6/8/91 for injec- tion
F008 — Plating bath sindges from the bottom of plating baths from electroplating operations where evanides are used in the process.	Cadmium Caromium (Total) Cyanides (Total) Cyanides (Amenable) Lead Nickel Silver	590 30 ——————————————————————————————————	0.066 5.2 ———————————————————————————————————	0.3Z 1.9 0.10 0.04 0.44	7/8/89
F009 — Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	Cadmium Chromium (Total) Cyanides (Total) Cyanides (Amenable) Lead Nickel Silver	590 30 ——————————————————————————————————	0.066 5.2 0.51 0.32 0.072	0.32 1.9 0.10 0.04 0.44	7/8/89
F010 — Quenching bath sludge from oil baths from metal heat treating operations where cyanides are used in the process.	Cyanides (Total) Cyanides (Amenable)	15		0.10	6/8/89
F011 — Spent cyanide solutions from sait bath pot cleaning from metal heat treating operations.	Cadmium Chromium (Totai) Cyanides (Totai) Cyanides (Amenabie) Lead Nickel Silver	110 9.1	0.066 5.2 ———————————————————————————————————	0.32 1.9 0.10 0.04 0.44	7/8/89 ⁶

FINAL THEATMENT STANDARDS FOR FIRST- AND SECOND-THIRD WASTES—Continued.

•		Nonwaste	rvater	•	
Hazardous waste description	Constituents of concern	Total com- position, mg/kg ²	TCLP,	Wastewater, total composi- tion, ma/L	Effective date
F012 — Quencining waste- water treatment sludges from metal heat treating operations where cy- anides are used in the process.	Cadmium Chromium (Total) Cyanides (Total) Cyanides (Amenable) Lead Nickel Silver	110 9.1	0.066 5.2 — 0.51 0.32 0.072	0.52 1.9 0.10 0.04 0.44	7/8/89 ⁶
F024 — Wastes including but not limited to, distillation residues, heavy ends, tars and reactor clean-out wastes from the production of chlorinated alignatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. [This listing does not include light ends, spent filters and filter aids, spent desiccants, wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in Section 261.32.].	2-Chloro-L3-butadiene 3-Chloropropene L1-Dichloroethane L2-Dichloropropane cis-L3-Dichloropropene trans-L3-Dichloropropene trans-L3-Dichloropropene Bis(2-ethylhexyl)phthalare Hexachloroethane Hexachlorodibenzofurans Hemchlorodibenzofurans Pentachlorodibenzofurans Pentachlorodibenzofurans Pentachlorodibenzofurans Pentachlorodibenzofurans Chromium (Total) Nickei	0.38 0.014 0.014 0.014 0.014 0.014 1.3 1.3 0.001 0.001	· — — — — — — — — — — — — — — — — — — —	0.28 0.28 0.014 0.014 0.014 0.014 0.036 0.036 0.001 0.001 0.001 0.001 0.001	6/8/89
K001 — Bottom sediment siudge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentacilorophenoi	Naphthaiene Pentachiorophenol Phenanthrene Pyrene Toluene Xylenes Lead	8.0 37 · 8.0 7.3 0.14 0.16	0.51	0.15 0.88 0.15 0.14 0.14 0.16 0.037	8/8/88: 6/7/89 for injection
KD04 — Wastewater treat- ment sludge from the production of zinc yellow pigments				Ť	8/8/88 ⁹
K005 — Wastewater treat- ment sindge from the production of chrome green pigments.	No land disposal based	і од до делега! 	tion ¹³	†††	6/8/89 for surface dis- posal and under- ground in- jection of nonwaste- wasters

FINAL TREATMENT STANDARDS: FOR FIRST- AND SECOND-THIRD WASTES - Continued

	•	Nonwaste	water		. •
Hazardous waste	Constituents of concern	mayka pozition, Total com-	TCLP,	Wastewater, total composition, mg/L	Effective
K052 (Continued)	Phenol Toluene Xylenes Arsenic Chromium (total) Lead Nickel Selenium	2.7 9.5	0.004 1.7 0.048 0.025	0.047 0.011 0.011 0.20 0.057	
K060 — Ammonia-still lime siudge from coking opera- tions	—-No land disposai bas	sed on no genera	ition ¹⁴	· Ť	8/8/88; 6/7/89 for injection of nonwaste- waters
K061 — Emission control dust/siudge from the primary production of steel in electric furnaces — high-zinc subcategory (≥15% zinc) interim standards effective until 8/8/90	Cadmium Chromium (total) Lead Nickel		0.14 5.2 0.34 0.32	- - - - - - - - - - - -	8/8/88: 6/7/89 for injection of nonwaste- waters
High-zine subcategory effective after 3/7/90	——No land cisposal	based on recycli	ng	iii .	8/8/90; 6/7/89 for injection of nonwaste- waters
Low-zine subcategory (<15% zine)	Cadmium :Chromium (totai) : Lead Nickei		0.14 5.2 0.24 0.32	Ţ.	8/8/88: 6/7/89 for injection of nonwaste- waters
K062 — Spent pickle liquor generated by steel finishing operations at facilities with-in the iron and steel industry (SIC codes 331 and 332)	Chromium (total) Nīckei Lead		0.094	0.32 0.44 0.04	8/8/88; 8/8/90 for injection
K069 — Emission control dust/sludge from secondary lead smeiring — noncalcium suifate subcategory	——No land disposal	based on recycli	ng ¹⁴	† 	8/8/88: 6/7/89 for injection of nonwaste- waters 14

TABLE COWE.—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT

	Waste code	See 8130	Regulated hazaroous constituent	CAS number tor required hazarcous constituent	Wastawaters concentra- bon (mg/l)	Non- wastiwethrs concentra- bon (mg/0)
1.	D004	Table CCN in 258.47	Araurac			
	0005	1 Table CCN in 258.43	Earner	7440-38-2	NA.	5.0#
	0008	Table CCIV in 258.47	Carrain	740-39-3	NA.	100
	D007	Table CCW in 258.43	Cyonsum (Total)	7440-47-32	NA NA	1.0 5.0
	Doca	Table CCN in 258.43	Lead	7439-02-1	NA.	5.0
	DOGS (Low Mercury Subcategory-	Table 2 in 268.42 and Table CCV in		7439-97-8	NA	0.20
	less then 250 mg/kg Mercury).	258.43.			,	
	Cata	Table CCW in 258.43	Scienzum	7782-49-2	NA	5.7
	C011	Table CCW in 258.43	See	7440-22-4	NA	5.0
	F001-F005 spent solvents	Table 2 in 268.42 and Table CCW in	Acetone	67-64-1	0.05	0.59
	•	258.43.		1	1	
	•		n-Sutyl alcohol	71-36-3	5.0	5.0
	•	,	Carbon ossunde	75-15-0	1.05	4.81
			Carbon tetrachionde	<u>-</u> 56-23-5	0.05	0.95
			Cresots (and cresvic acid)	108-90-7	0.15	0.05
			Cycoheranone	108-94-1	2.52	0.75
		}	1.2-Dichloropenzane	95-50-1	0.125	0.75
		,	EXTY SOSTATE	141-78-6	0.05	0.125
			Епутрепzеле.	100-41-4	0.05	0.053
	•		Ethyl ether	_ 6C-29-7	0.05	0.75
			Iscourance		5.0	5.0
	•	<u> </u>	Memanol	J 57-56-1	0.25	0.75
]	Metriyiena chichde	<u>-</u> 75-3-2	0.20	0.96
	•		Methyl etnyl ketone	78-93-3	0.05	0.75
			Metrivi isocutvi ketone	108-10-1	0.05	6,33
		· .	Nitroperizene	98-95-3	0.55	0.125
	•		Рупсіла	110-86-1	1.12	0.33
		1	Testactionoeutylene	127-18-4	0.079	0.05
			1.1.1-Tricatore-mane	108–88–3	1.12	0.23
		l	t,:2-Trichicro-1.2.2-Teunitugramane	≟ 71-55-6 : 76 +2 •	1.05 1.05	0.41
		<u> </u>	Trichloroetriviene	_ 70=13=1 _ 79=01=6	0.062	0.96 0.091
		İ	Trichlorometriane	175-69-4	0.052	0.56
	•	1	Xyiene		0.05	0.15
ē	7006	Table CCN in 268,43	Саспъил	7440-13-9	NA	0.066
	•	i !	Съотвит (Теш)	7440-47-52	NA	5.2
		į į	Lean	7439-92-1	NA	0.51
١				. 7440-0Z-0	NA	0.32
′ _				2740-22-4	NA	0.072
F	₹007	Table CCN in 268.43		744033	NA .	0.066 .
				7440-47-32	NA	5.2
				7439-92-1	NA	0.51
		<u>.</u>		7440-02-0 7440-22-4	NA	0.32
F	708805	Table CC.V in 253.43		740-13-9	NA NA	0.072 0.066
				7440-47-52	NA	5.2
				7439-92-1	NA I	0.51
		; ;		7440-02-0	NA I	0.32
			Silver	7440-22-4	NA	0.072
F	G09		Caonton	740-43-3	NA	0.066
					NA	5.2
			Lead	7439-92-1	NA	0.51
		·	Nicxau	7440-02-0	NA	0.32
=	017	<u> </u>	Silver	7440-22-4	NA	0.072 -
•			Ciroment (Total)	7440-43-9 7440-47-32	NA NA	0.065 · 5.2
			Lead		NA ·	0.51
	J	l l	Nicxel		NA I	0.32
	1		Silver		NA I	0.072
F	012		Састия		NA .	0.056
	İ	1	Стопнит (Тош)		NA	5.2
			840	7439-92-1	NA	0.51
	- [Nickel		NA	0.J2
_			S>		NA	0.072
	019		Caromeum (Total)	7440-47-32	NA	5.2
r	120-F023 and F026-F028 diown L		htCCO-All Heractionosberzo-p-diox-			
	containing wester.".		ins. h:CDF-All Hexactiorogiberrorissans	ļ	<1 000	<1 000
			PeCCO-All Pertachtorodiberzotzana.		<1 ppo	<1 ppa
		['	ciones.		<1 000	<1 000
	j	، ا	PeCDF-All Pentactionodibenzonirans	ļ	<1 000	<1 000
	i		CCD-All Terrachiprogramiza-p-digx-		-,	~ 1 000
					}•	
	•	•	ras,	i i	<1000)	<1 000
		, <u> </u>	rra. ICOF-All Tetrachtoroxiberoxiturana		<1 coo	<1 000 <1 000
	·				<1 cpc <1 cpc <0.05 cpm	<1 000 <1 000 <0.05 00m

TABLE COVE.—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT.—Committeed

Waste Code.	See also	Requisited hazarroous consisteers	CAS rumber for recurated hazarrous consistent	pou (mg/t) concerna-	Non- concern concern ton (mg
		27.4.8-Tetracisoroonenol	58-00-2.	<0.05 com	<0.05 00
1		Percentagement	87-86-6	<0.01 ports	<0.01 00
		Communa (Total)	7440-17-12	NA ·	0.073-
24	Table CCN in 258.4T	Lead	7479-02-1	NA .	0.021
			7440-02-0	NA	0.088
		Nicos	7440-38-0	NA	0.23
	Table CC.Y in 253.41	Аполопу	7440-38-2	NA.	5.0
		Years	7440-33-3	NA.	52
:-	· · · · · · · · · · · · · · · · · · ·	Earan	7440-13-9	NA.	0.068
• [Comen	17440-47-32	NA.	5.2.
		Cyonsum (Total)		NA.	0.51
•••			7439-92-1		0.025
• • • • • • • • • • • • • • • • • • • •		Mercury	7439-07-8	NA.	0.32
		Nictors	7440-02-0) NA	5.7
		Selenzart	7782-19-2	NA ·	0.072
		SN	<u> 1</u> 7,440-22-4.	NA .	
	Table CCN in 268.47	Lead] 7439-92- 1	NA	0.51
G1	Table CCW in 258.43	Ciromani (Total)	7440-47-72	NA	0.094
02	1202 0001 11 202	LANCE	7-139-92-1	NA .	0.27
•	Table CCW in 258.43	Chromaum (Total)	7440-47-52	NA	0.094
03	· Land Cost in 200	1820	<u>.</u> 7 439-82- 1	NA NA	0.07
	Table CCW in 258.43	Commun (Total)	7440-47-52	NA	0.094
04		Lead	7429-92-1	NA	C.27
ļ	Table Cont in sen in	Chromum (Total)	7440-47-52	NA -	0.094
05	Table CCW in 258143	Page	1 7439-32-1	NA	0.37
-		Chromoum (Total)	7440-47-32	NA	0.004
G6 (annyerous)	Table CCV in 258.43	•	7-79-92-1	NA	0_27
	i	Communication of the state of t	7440-47-32	NA	5.2.
06 (hydrateg)	Table CCN in 268.43	Caronsum (Total)	7440-47-32	NA NA	0.094
07	Table CCW in 258.43	Chromaint (Total)	7439-92-1	NA	0.37
·		Lead:	7440-47-52	NA:	0.094
08	Table CCW in 268.43	Chromium (Total)		NA-	0.27
00		Laad	743 9_3 2-1 7440-47-52	NA	1.7
15	Table CCV in 258.43	Chromen (Total)		1 -	0.2
13	1	<u> </u>	7459_62-1	NA.	0220
	Table CCW in 258.43	Anemony	7-40-58-0	NA	52.
21	Table CCV in 258.43	Съртин (Тока)	7440—17—32	NA	0.22
27	THE SECTION OF THE SE	Nicxei	7440-02-2	NA	I
	Table CCN in 258.40	Ciromsum (Total)	_ 7440-17-02	NA-	. 0.073
28	1204 0001 111 2000	Lead	7433-92-1	NA	0.021
		Nicxet	7440-02-0	[NA	0.088
	Table CCN in 288.43	Arsenic	7440_53-2	NA NA	5.6#
S1	Table CC.V in 258.43	Lead		NA	0.18
48	Table CC.V in 258.43	Chromum (Total)	_: 7440-47-32	NA	1.7
	Table Coss in cours	Nickel	7440-02-0.	NA -	0.20 -
	Tanta CCW in 258.43	Coroneum (Total)	7440-47-32	NA.	1.7
49	1303 Con 11 200.40	Nickel	744002-0	NA	0.20
	m	Ciromum (Total)	7440-47-52	NA	1.7
50	Table CCN in 258.43	Nicke	7440-02-0	NA	0.20
•		Chromium (Total)	7440-47-32	NA	1.7
51	Table CCN in 258.43	Nicxai	7440-02-0	NA	0.20
• •		Caromann (Total)	7-40-47-32	NA	1.7
52	Table CCN in 253.43	Nicket	7440-32-0	NA	0.20
		Cacmen	7440 13-9	NA 1	0:14
51 (Low Zinc Subcategory issa	Table CCW in 268.43	Сиопвит (Тогай	71407-32	1	· 5.2
tran 15% Total Zinch	1 :		7479-92-1	NA	0.24
•		Nicket	7440-02-0	NA	0.22
			7440-17-32	NA	0.094
352,	Table CCW in 258.43	Стопния (Тош)		NA	0.37
		Lead.	7440-13-9	NA NA	0.14
89 (Calcium Sulfate Subcategory) —	Table 2 in 268.42 and Table CCV in	Cacmeum	7429-32-1	NA	0.24
,03 (Calculi Gallin 1) ,,	268.43.	Lead	7439-97-6	NA	0.025
77 (Low Mercury Subcaregory-	Table CGN in 268.43	Mercary		1	1
less man 16 mg/kg Mercury).		}	7±40-02-0	NA	0.085
	Table CCW in 268.43	Nickel	740-02-0	NA	5.5#
83	Table CC-V in 258.45	: Arsenic			0.094
184	Table CCN in 268.43	Ciromeum (Total)	7440-47-52	NA.	0.037
88	1	Losq	7439-92-1	1 * '	0.51
	Table CCW in 258.43		7139-92-1	NA NA	0.088
987	Table CCV in 268.43	Cagmen	7440-43-9	NA	
100		Chromeum (Total)	7440-47-52		5.2
	}	11984	7439-92-1	NA NA	0.51
	Table CCN in 258.43	Arsenic	7440-38-2	NA.	5.5#
101	Table CCV in 258.43	Arsenic	7.40-38-2	NA	5.63
102	Table 2 in 268,42 and Table CCIV in		7439-97-5	NA NA	0.20
108 (Low Mercury Succession) less man 250 mg/kg Mercury—ess-	258.43.	,	7,22	NA	0.025
dues from RMERCL. 108 (Low Mercury Subcategory	Table 2.in 258.42 and Table CCN in	Mercury	7+39-37-5	170	1 0.0
less than 250 mg/kg Mercury—that	268.43.		1	}	:
	, market	1	1	4	ş

wastes that are prohibited under § 288.32(e)(1) of this part must be incinerated in accordance with the requirements of 40 CFR part 254, subpart ... subpart C treatment standard for

O or 40 CFR part 255, subpart O. These treatment standards do not apply where the waste is subject to a part 238.

specific HOC (such as a hazardouswaste chlorinated solvent for which a treatment standard is established under § 288.41(a)].

TABLE 1.—TECHNOLOGY CODES AND DESCRIPTION OF TECHNOLOGY-BASED STANDARDS

Technology code	Cescoption of technology-based standard
+	
ADGAS	Ventury of combinated gases into an absorbing or reacting-media (i.e., solid or fould)—ventury can be accombished through physical release uniformy values/point; physical penetration of the container; and/or penetration through detonation.
· AMEM	Amangamenon of liquid, elemental mercury contaminated with radioactive materials unitaring inorganic respents such as copper, zinc, nicket, gold, and such that result in a nonstruct, semi-cold amangam and thereby reducing potential emissions of elemental mercury viscors to the six.
. 8ICCG .	Biodegradation of organics or non-metalic inorganics (i.e., degradable inorganics that contain the elements of phosonorus, netopen, and subtri in times
فعال متحير سروه	operated under either sercoid or sheerooid conditions such that a surrogate compound or indicator parameter has been substantially recorded in concentration in the residuals (e.g., Total Organic Carpon can often be used as an indicator parameter for the biodegradation of many organic
	CONSTRUMENTS (Not CURRON DO CAPACITY STRENGTES IN MESTAMANTER TOSCHOOT).
CAREN	Carpon-accordion (granulated or powdered) of non-metallic inorganics, organo-metallics, and/or organic constituents, coerated stich that a surrogate
	compound or indicator parameter has not undergone presidencing (e.g., Total Organic Carbon can often be used as an indicator parameter for the adsorption of many organic constituents that cannot be cirectly analyzed in wastewater residuest. Breatthrough occurs when the carbon has
	become saturated with the constituent (or indicator parameter) and substantial change in actions on rate associated with that constituent occurs.
CHOXD	Charmonal or electrolytic conduction uniforms the following conduction reagents (or wester reagents) or communications or reagents. (1) Hypochionia. (e.g.,
	bleacht; (2) chionnes (3) chionne cloudes (4) other or UV (uthaviolet light) assisted others (5) permittess (7) permittess (8) permangantess and/or (9) other cooling reagents of educations enforced in units operated such that a surrogate compound or indicator.
	parameter has been substantially reduced in concentration in the residues (e.g., Total Organic Carbon can often be used as an indicator parameter-
	for the condition of many organic constituents that cannot be directly analyzed in wastewater residuest. Chamical codation specifically includes what is commonly referred to as alkaline chlorination.
CHRED	Chemical reduction unitioned in a following reducing reagents for waste reagents) or combinations of reagents: (1) Suitur closedes: [2] sodium, collessium,
	or aixaii saits of stafiles, bisuntas, metanosumes, and convenimens groups (e.g., NaPES and KPESI; (3) contum nyurosumide; (4) femous saits and
,	or (5) other reducing reagents of entiresent efficiency; performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the resolution (e.g., Total Organic Halogens can often be used as an indicator parameter for the reduction of
	I, many havogenated organic constituents that cannot be cirectly analyzed in-wastewater residuals. Chamical reduction is commonly used for the
	reduction of hexaverent curomatin to the trivalent state. Ceactivapon to remove the hazaroous characteristics of a waste due to its ignitiability, corrossviry, and/or reactivity.
CEACT . FEUES	Conservation in units operated in accordance with applicable becames operating requirements.
HLVIT	Vitamication or him leaves mared ractionative westes in units in committee with all actionative randoctive crotection requirements under control of the
IMERC:	Muchear Requisitory Commission. Inconeration of wastes containing originize and mercury in units operated in accordance with the factorizal operating requirements of 40 CFR part 254.
Merio.	support O' and 40 CFR part 265, suppart O. All wastawater and nonwastawater residues derived from this process must then comonly with the
	corresponding transment standards per waste code with consideration of any applicable suppressiones (e.g., High or Low Mercury Suppressiones)
INCIN	Inconeration in units operated in accordance with the technical operating requirements of 40 CFR cart 254, subpart O and 40 CFR cart 255, subpart O. Light-discuss extraction (often referred to as solvent extraction) of organics from tictud wastes into an immediate solvent for which the Patterious
<u> </u>	constituents have a greater solvent afficity, restraint in an extract bigh in organical that must undergo entire victoration, reuse as a bight of curies
	recovery/reuse and a ranfinate (extracted liquid waste) proportionalery low in organics that must undergo human treatment as specified in the standard.
MACRO	Macroenicassulation with surface coating materials such as conymenc organics (e.g. resms and plastics) or with a jacket of inert inorganic materials to
	SUBSTANTIALLY FROM SUFFICE STREETS TO COTENTIAL BEACHING MECIA. Macroenconsulation specifically does not include any material that would be
אבעדה	cassified as a tenx or container according to 40 CFR 250.10. Neutralization with the following reagents for waste reagents) or combinations of reagents: (1) Actist (2) basest or (3) water (including wastewaters)
	resuring in a ori greater than 2 but less than 12.5 as measured in the aqueous residuals.
RSQJK	No land cispossi based on recycling. Chemical precontation of metals and other inorganics as insoluble precipitates of podes, hydroxides, cultonates, surfates, chlorides, foundes,
PRECE	or normalists. The (dillowing readents) (or waste readents) are typically used alone or in committation. (1) Little (i.e., containing codes and/or
	borrowings of culcum and/or magnessum; (2) causoc (i.e., socium and/or potessium nvoroxides; (3) socia aso (i.e., socium curbonatat; (4) socium
*	suifidat (5) ferrie suitate or ferrie critoriosi (6) aiumt or (7) socium suitate. Additional foculating, coaquiation; or similar reagents/processes that enhance suitide deviationing characteristics are not precision from use.
RESTY :	Thermal recovery of Servinian.
RCGAS	Recovery/reuse of compressed gases including becomples such as reprocessing of the gases for reuse/resalet filtering/adsorption of impuritiest remount for direct reuse of resalet and use of the gas as a fuel source.
RCCER	Becomes of acces or bases uniform one or more of the following recovery technologies: (1) Distillation (i.e., thermal concentration); (2) ion exchange:
	(ii) means or sound adsorptions (4) reverse compasts and/or (5) incineration for the recovery of acid—Note: this coes not precision the use of other
	physical phase separation of concentration fectivaties such as decantation, filtration (including untalitration), and centiningation, when used in continuous with the above listed recovery technologies.
ALEAD	Transport recovery of least in secondary lead smelters.
RMERC	Retorang or reasong in a thermic crocessing unit capable of volunizing mercury and subsequently condensing the volunized mercury for recovery. The retorang or reasong unit (or facility) must be subject to one or more of the following: (a) A National Emissions Standard for Hazzirdous Air Poliutanis
	I INCISHADI for mercury: (b) a Best Available Control Technology (BACT) or a Lowest Achievable Emission Rate (LAER) standard for mercury
	I imposed printing to a Prevention of Significant Ceteroration (PSD) permit or (c) a state permit that establishes emission limitations (within meaning
	of Section 302 of the Caen Air Act for mercury. All wastewater and nonwestewater residues derived from this process must then commy with the corresponding treatment standards per waste code with consideration of any applicable subcategories (e.g., High or Low Mercury Subcategories).
AMETL	Recovery of metrics or inormanics uniform one or more of the following cirect chysical/removes technologies: (1) for excitanget (2) resist or solid (LE.
,	Tentitest accompany (3) reverse company (4) cherabon/sovient entraction; (5) freeze crystalization; (5) utranstration; and/or 6 simple precontact (1.5).
	Crystalization)—Vote: this does not precipile the use of other physical phase separation or concentration techniques such as decarmation, filtration (including utranstration), and commiquion, when used in commiscion with the above issed recovery technologies.
RORGS	Secretary of contract unitaring one or more of the following technologies; (1) Distribution; (2) thin film evaporation; (3) steam stripping; (4) current
	ansoronom: (5) crecal fluid extrectors (6) liquid-liquid extractions (7) precipienon/crystalliction (including treets crystallication); or (8) chemical crises secure on the compound (i.e., addition of acces, bases, demusitiens, or sames chemicals); Note: This cose not brechide the use of other physical priess.
	Securation (scrimduss (LAL 200000) of acces, pases, communities, or similar chemicist; Note: that cost for the cost of other physics such as securation, litration (including ultrapitation), and continuously when used in continuously with the 2009 listed
	recovery technologies.
ATHAN.	Thermal recovery of metals or inorganics from nonvestmenters in units datined in 40 CFR 250,10, paragraphs (1), (5), (7), (11), and (12), under the

TABLE 1.—TECHNOLOGY CODES AND DESCRIPTION OF TECHNOLOGY-BASED STANDARDS—Continued

Taconorody code	Description of lactinology-based standard
PZING	Resmetting in for the purpose of recovery of zinc high temperature metal recovery units.
STABL.	Standardon with the following rangerits (or wester rangerits) or combinations of inappets; (1) Portland cement of (2) time/consists (e.g., (ty soft and cement lost dust)—into oces not practice the accidion of rangerits (e.g., (ton saids, and days) designed to enfance the set/cure time and or compressive stream, and to overall radius the leadingsity of the meets of inorganic.
\$\$TAP .	Steem supposing of organics from Sound wesses unking direct appaication of steam to the wester operated such that ficuld and vacor flow rates, as well as, temperature and pressure ranges have been controled, monetoned, and manufacied. These courtains parameters are decendent upon the design parameters of the unit such as, the number of secentian stages and the steems country design. Thus, resulting it a condensed country bigh is organized that must undergo either incoverable, reuse as a lues, or other recovery/reuse and an exhibitor washingther that must undergo harder treatment as specified in the standard.
WETCX	Wet air concerns performed in users coordinal such that a surrogate compound or indicator parameter has been successfully reduced in concentration in the rescussis (e.g., Total Copanic Carbon can online be used as an indicator parameter for the modation of many organic constituents that cannot be directly analyzed in wasteweigh resource.
WIRKX	Controlled reactions with water for highly reactive inorganic or organic chemicals with precaudatory controls for protections of workers from potential violent reactions as well as precaudonary controls for potential emissions of toxic/syntable levels of gases released during the reaction.

NOTE 1: When a commination of these technologies (i.e., a treatment train) is specified as a single treatment standard, the order of application is specified in § 268,42. Table 2 by indicating the five letter technology code that must be applied first, then the designation "this" (an approximation for "bollowed by"), then the live letter technology one must be applied next, and so on.

NOTE 2: When more than one standard for treatment train) are specified as-alternative treatment standards, the five letter technology codes for the treatment trains) are sequented by a semicolon (t) with the letter technology precised by the word "OR". This processes that any one or these EDAT technologies or treatment trains can be used for compliance with the standard.

TABLE 2-TECHNOLOGY-BASED STANDARDS BY RCRA WASTE CODE

	1		CAS No. for	Тесплоюду с	zoda zoda
coos Weeze	See also	Wasta descriptions and/or treatment subcategory	covarineura primarcora redinated	Wastewaters	Nonwastawaters
2001			NA	CENCT .	NA.
		Wastewaters.	<u> </u>	1	
0001		ligname Liques based on 251.21(a)(1)—Low	NA	NA	CEACT.
	!	TCC (greatile Liches Subcategory—Less than	ļ		
		10% total organic carport	ŀ		
2001		Ignitable Liquids cased on 251.21/al(1)—Fign	NA NA	NA	FSUBS: ACAGS: or
		TCC Igratatie Litturas Subcategory—Greater	1		INCIN
		राज्या or equal का 10% कारण orçanec curson.			
1000		Ignaturate compressed gases based on	i wa	NA	DEACT.
]	251.21(a)(3).	1	1	
2001		Ignable reactives 261.21(a)(Z)	NA	NA .	DEACT.
JG01		_i Caratrers 525ed on 251.21(z)(4)	, NA	DEACT	ا العربية
2002		_; Aca: succategory cased on 251,27(s)(1)	! NA) DEACT	DEACT.
7002		- Viventia service dell'i comen di seriamenti i	. NA	DEACT	CEACT.
2002		Cther composives based on 251,32(a)(2)	. NA	DEACT	DEACT.
2003		- Reactive surides pased on 261,23(a)(5)	. NA	DEACT	DEACT.
2003		E-conves cased on 257.22(a) (6), (7), and (8)	: NA	DEACT	DEACT.
2003		Water (82C) ves 0258d on 251,23(a) (2), (3), and		NA	CEACT.
<i>7</i> (0.3		1 (4).	1		
cca	1	Coner rescurves cased on 251,23(a)(1)	! NA	DEACT	DEACT.
2003		Cadmium containing dattenes	7440-43-3	NA .	ятням.
2008		Lase and battenes (Note: This standard only	7439-92-1	NA .	RLEAD.
~~a		appear to lead acid batteries that are identified	1	177	ł
		as FCRA herraroous wastes and that are not	l	1	ŀ
		excused elemeners from requision under the	ļ	1	
	İ	land disposal restrictions of 40 CFR 258 or	ļ	****	
	1	exempted under other EPA requisitors (see 40	į		
	}	CFR 286.80).1.		1	ĺ
2009	Table CCNE in 268,41	Mercury: (High Mercury Subcategory-greater	7439-07-6	NA	INERC: or AMERC.
CUU	and Table CCN in .	man or equal to 260 mg/kg total Mercury-		1	
	258.43	contains mercury and organics (and are not	i		
	250.44	incherstor residues!).	ì	1	
	Table CCNE in 258.41	Mercury: (High Mensury Subcategory-greater	7433-97-6	NA.	RMERC
2009	and Table CCW in	Than or equal to 250 mg/kg total Mercury-		1	
	268.43.	nomanics (including inchestor resource and	į.		
	200.4	needed from RMERCIL	1]	
012	Table CCW in 258.43	Engra	72-20-8	BICOG: OF INCIN	NA.
		Liozana	SA 80 0	CAREN: OF INCIN	NA.
013	Table CCV in 268.43	Name of the second of the seco	172-43-6	WETOX: OF INCIN	NA.
X014	Table CCN in 268.43	Toompene	8001-35-1	BIODG: OF INCIN	NA.
2015	Table CCW in 268.43		94-75-7	CHOXD: SIODG: or INCON	NA.
2016	Table CCW in 258L43	240	93-72-1	CHOXE: or INCIN	NA.
X017	Table CCW in 260.47	1 24.5-TP	79-48-3	METOX OF CHOXOL IS CAREN	, ··· -
005	Table CCIVE in 268,41	2-Nitrooroosne	. 13 -40-4	or INCIN:	,,,,,,,,,,
	and Table CCW In	1	I	OR SPECIAL	
	268.43.		I	1	•

TABLE 2-TECHNOLOGY-BASED STANDARDS BY RCRA WASTE CODE-CONTINUED

		1	CAS No. for		
Waste COGE	See size	Waste descriptions and/or treatment socrategosy	COUNTERPARTS JEENSTOONE DECEMENTED	Wastiwaters	Normesomesters
F005	Table CCNE in 255.41	2-Ehoryonistos	11 0-70-5	SICCO: OF INCER	DICOL .
F024	and Tedle CCN in 258-43. Table CCNE in 258-41		NA	INCIN	INCIN.
K025	and Table CCTV in 258,43.	Claubacon bottoms from the production of piece	NA	LLEXT & SSTRP & CAREN; &	, INCL
NUZ.		became by the recessor of became. Stripping and take from the productors of mempl.	ı.	INCH INCH	NCIL
KG25		eurys pyricines. Camphige and dissilation regions from tobacce.		CARBRE OF INCOM	FSUBS: & INCOL
K027		Ciscoperate production. Filter case imas the filtration of destraionattoons-		CARENT OF INCIN	FSUBS; or INCN.
K039		aiming next in the programon of chorate.			DEACT.
KC44		Wastewater treatment studges innocute manufac- bung and processing of emposives.	. N.A.	DEACT	
X045		Sount curon from the transfers of wastewards	NA.	DEACT	מבאכת.
NUAG		Containing economies. Philogo water from TNT operations	. NA	DEACT	DEACT.
K047	Table CC.V in 268,43	in the country control of the country	NA	NA	NICSH.
K061	James Carrier 200.	Zing Subcategory—greater than or equal to			
K059	Table COVE in 258.41	15% total Zort. Emission control cumustudge from secriptians lead smelting Non-Calcium Suidate Succasego-	NA	MA	ALEAD.
K106	Table COWE in 268.41	Wastewater treatment studge from the moretry cell process in channel production (High Mac- cing Subcategory-greater thank or edital in 250	NA I	NA	AMETC.
К113	258.43.	marky maximerary). Condensed kned ignt ends from the purification of towersename in the production of towersename.	NA }	CARENT OF INCIN	FSLES: OF INCIN.
K114		сапала ча пулосенавол от самоналале ін Укітав ітот на силісакол от ісменавале ін на споміско сі ісменавалие ук. пустојео-	NA	CARRE & INCIT	FSU63; or INCIN.
K115		aron of discreminate.	i .	כאקפאר מר שוכשנ	FSUBSL OF INCIN
.,		in the productor of interpendental via com- generating of communicate. Contains concensate from the speeds recovery	NA NA	CARENE OF INICIA	FSUBS: or INCIN.
KIIS		continuing the ontonicing of following disocyali-	81-31-2	(WETOX or CHOXE) IS CAREN:	FSUBS: or INCIPL
2001		Wariann (>05%)		CHECK OF CHOKE) TO CARBN	}
P002		1-Acaryl-2-trouves		CHEICX OF CHOXOL IS CAREN	1
F003		Almi accord	107-18-6	(WETOX or CHOXD) IN CARENT	!
P005 P008		Aluminum prosonice	20859-73-8	CHOXD: CHRED; or INCIN	CHOXD: CHRED; or
P007		5-Aminoeutry 3-isoszaciol	2753-65-4	(WETOX OF CHOXET TO CAREN	l
POCS		4-Annonyedise	504-24-5	(WETOX or CHOXD) IN CAREN or INCIN CHOXD: CHRED: CAREN	1
P009		Anmonum coals	103-93-5	SIOUR CHREST CARENT SIOUR OF CHOKET IS CAREN	CHRED: or INCIN.
F014	!	Thicasend (Servene atol)	7440-41-7	or INCL	RMETL: or RTHRM.
P015 P016		Sistemoronamy lamar		(WETOX or CHOXD) IN CAREN or INCIN (WETOX or CHOXD) IN CAREN	Ş
P017		9romoacatoria	257-57-3	(MEIOX & CHOXE) IN CARBN	i
P018	Table CCN in 268.43	Carpon disuside	75-15-0	OF INCIN NA (WETUX OF CHOXO) IN CAREN	INCIN.
P022 P023	I ania Co.7 in 265.43	Ciloroacataidanyda	107_20_0 5514_32_1	OF INCIN CHOXET IS CAREN WETOX OF CHOXET IS CAREN	
P025	<u> </u>	140-Carconerm) thouses		OF INCH OF CHOKEN IN CHEEN	i .
P027		3 Chlorogropioneme	103-4-7	מרוחכות מי כאססטו ה כאאפת	1
P028			Ĭ	or INCIN	•

§ 258.41. § 258.43. and Table 2 of this section.

: 12 Section 258.43 is amended by ravising paragraph (a) and Table....... CC.V-Constituent Concentrations in Wastes, and by adding paragraph (c) to read as follows: .

§ 258.43 रिक्स्पालार प्रकारकाव्यक स्कृतकावत 25 WESTS CONCENTRATIONS...

._ (a) Table CCW identifies the restricted wastes and the concentrations of their associated hazardous constituents which may not be exceeded noted in the following Table CU.V. by the waste or treatment residual (not

an extract of such waste or residual) for the allowable land disposal of such waste or residual. Compliance with these concentrations is required based upon grab samples, unless otherwise

TABLE CC.V.—CONSTITUENT CONCENTRATIONS IN WASTES

- Wassa coda	See 2150	Requiated fuzzaroous constituent	CAS No. for requested hazzardous constituent.	Wastewaters concentration (mg/l)	(mg/kg) westewaten
		Cyandes (Total)	57-12-5	Reserved	<i>≱</i> 59
CC: (Rescure cyanides subcasego-	·		1 57-12-5	. 0.86	:
v-based on 251.23(a)(5).		Cyamores (Americale)	7440-58-2	5.0	N
04	Table CONE in 268.41	Arsenc	7440-39-3	100	N
	Table CCIVE in 258.41	Barren			N
05	Table CCIVE in 288.41	Саспист	7440-13-3	1.0	
οσ:	Table CCNE in 268.41	Сиопели (Гозді)	7440-47-32	5.0	3
37	Table CC.VE in 268.41	Lead	7439-32-1	5.0	
78		Marcay	7429-97-8	0.20	
19	Table CCIVE in 258.41	Seleneuri	7782-19-2	1.0	
.0	Table CCIVE in 268.41		7440-22-4	5.0	į į
1	Table CCIVE in 258.41	Siver:	720-20-3	NA	C.
2	Table 2 in 258.42	Exem		NA.	0.0
	Table 2 in 258.42	Lingage	58899		3.
3	Table 2 in 258.42	Methoxycrzor	7243-5	NA	
4		Тохаолеле		NA.	
5	Tante 2 in 268.42	24-0	24-75-7	NA.	j 1
5	Table 2 in 258.42	- ·	93-76-5	NA	1
7	Table 2 in 258.42	24.5-TF Silvex	71-35-3	0.020	9
11-705 spent servents	Table CCIVE in 258,41 and Table 2	1.1.2-Trichioroemane		0.070	í
(1=-003 SDBIR SOIVERICS	irt 258_4Z.	Bertzene	71—2-2		<u> </u>
		Метулеле стопсе	75-09-2	0.44	i
11-F005 scient solvents (Pharma-		•	1		
shocal profitally martematel 2010-	•	•			
niegory).		.Cyanides (Total)	57-12-5	1.2	,
76	Table CCNE in 258.41		57-12-5	0.26	1
		Cyanides (Amerianie)	7440-13-3	1.5	!
		Carrer		0.52	,
	,	Cromun	7-40-47-32	0.040	!
		Lead	7-29-92-1		
•		Nicker	7440-32-0	0.44	
		Cyanices (Total)	57-12-5.	1.9	Ì
7	Table CCWE in 258.41.	Cyanicas (Amenacia)	57-12-5	0.1	Ì
	,		7440-47-32	0.32	1
		Circusum (Total)		0.04	i
		Lead	: 7439-92-1	0,44	
		Nicket	7-40-52-5		•
	The control of the sea at	Cyanges (Total)	57-+2-5	1.3	•
38	Table CCWE in 258.41	Cyanides (Amenable)	` <i>57-</i> -:2-5	0.1	•
		Сиотип	7440-47-32	0.12	1
			7439-72-1	0.04	\$
	_	Lead	7440-02-0	0.44	Ĭ
	[.	Nicxet		1.9	
	Table CCIVE in 268.41	Cyamoes (Total)	57-12-5	0.1	1
×	i and concernation	Cyanges (Amenabie)	57-12-5:		
	j.	Ciromum	7440-47-52	0.32	
	} '	tser	7439-92-1	0.04	
•	*	Nictel	7440-02-0	0.44	.)
			! 57-:2-5	1_9	+ 1
10	ļ	Cyandes.(Total)	57-12-5	1 O.1	ŀ
	i •••	Cyanoes (Amenanie)		-1.9	1
	Table CCIVE in 258.41	Cyences (Total)	! 57-12-5	0.1	
11	Ţ:: · · · ·	Cyanides (Amenadie)	57-12-5	0.52	
		Chromeen (Total)	7440-47-G2	0.04	
		Lead	7439-92-1	1	1
		Nicket	: 7440-02-0	0.44	
,	1	Cyanides (Total)	57-12-5	1.9	
12	Table CCWE in 288.41		57-12-5	0.1	
•	1	Cyamos (Amerane)	7.1407-32	0.22	2
	1	Chromium (Total)	7.139-92-1	0.04	i i
	1	Lead		0.44	
		Nickel		1.3	
	Table CCWE in 268.41	Cyanicas (Total)	57-12-5		-)
19	- I dure Currer of Education	Cyaraces (Amenacie)	: 57-12-5	0.86	
	ļ	Chromeum (Total)	7440—17—32	0.22	
			125-59-8	* 0.22	3
24	Table CCWS in 268,41 and Table 2 in 268,42 (Note: F024 organic standards ment be treated via in-				
		1	ļ.		_
•	oneration (INCINI).	3-Chioropropens	1:07-05-1	***n.=	
			75-34-3	• 0.01	
		1,1-Cicntoroethane	107-38-2	• 7.01	41 45
]	1.2-Dictroroemane.		* 7.01	
	,	1 4 4 5	N-01-7		
	1	1,2-Oicniorepropane	;cc61-01-5	• 2.01·	به زيم

TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

	Waste code		Regulated hazardous constituent	CAS No. for requested hexaroous consistent	Wastawatara concantration (mg/l)	Non- western series concentration (mg/kg)
		•	p.C.	105-44-5	• 0.017	*52
(y	•		24-Oirnettyrphenol	105-67-3	•0.033	*NA
•		-	Ethylbenzane	100-41-4	.*0,017	• 14
			Nagranagana	31-20-3	• 9.033	• 42
	•	į	Phonestrane	15-01-8	. 0.039	*34
3.25		1	Phenoi	108-95-2	90,047	• 3.6
<u>:-</u> ₹.	•	†	Toluene	105-88-3	*0.011	• 14
7.			X		*0.011	• 22
-		1		57-12-5	9.025	• 1.8
			G-1	7440-47-32	0.2	AK NA
]		7439-92-1	0.037	• 0.071
XXXX.		!		171-43-2 150-32-8	2.035	*3.5
			Serucia)pyrene	91-20-3	0.023	*3.4
] .	,	108-95-2	*- 0.042	*14
	•	}		57-12-5	1.9	1.2
		Table COVE in 258.41 and Table 2	Cadmun	7440-43-9	1.51	NA.
KD51 _		in 258.42.		7,	1	
		10 A A A A A A A A A A A A A A A A A A A	Chonsum (Total)	7440-47-52	0.22	- NA
		1	1 mar	7439-92-1	0.51	j NA
		1	Nexe	7440-02-0	0.44	
Ynsa		Table CUVE in 268.41	Caromum (Total)	7440-47-32	0.32	1
AUGZ _		1	Lead	<u>-</u> 7439-92-1	0.04	•
		1	Nickel	740-02-0	0.44	
K069_		Table CCIVE in 268.41 and Table 2	Carren	7440-43-9	1.5	NA NA
	· · · · · · · · · · · · · · · · · · ·	in 258.47.			0.51	NA.
		1	Mercury	17439-92-1 17439-97-6	0.030	1
KG71.		Table CUIVE in 258.41			0.057	1 2 1 1 1
K073.				_ 55-23-3 _ 57-66-3	0.046	
			Hecanoroemane		0.055	
		1		127-16-4	0.055	
		1		71-55-6	0.054	6.2
		Table COVE in 258.41	Egyzne	71-43-2	0.14	9.5.5
KU83.		1		. 5Z-53-3	70.81	
			Disperwamme	_ 22-39	0.52	
			Cioneminaresamine	<u>. 36-30-</u> 5	10.40	ļ NA
			Sum of Dichenylamine and Dichenyl-	}	.	* 14
		1	riansamme.		NA 10000	
	•	į	1 11 11 11 11 11 11 11 11 11 11 11 11 1	<u>.</u> 98-95-3	530.0° 920.0	1
()		1		108-95-2	0.039	
		1		1108-94-1	0.47	
		i	Nickes	_ 7440-38-2	0.79	
		4		_ 71—13-2	0.14	
KD85.			C-lorcoenzene		0,057	
	•		p-Dicnioropenzene		0.088	
	•		m-Cicriorooerizane		'0.036	
		' '		106-46-7	*0.090	
		1	1.2.4-Trichlorocenzene	120-32-1	0.055	
		1		95-94-3	0.055	
			Репистюговетиеле	508-93-5	0.055	
-	•		Hexacronopercene	118-74-1	10.055	
ir			Aroccor 1016	12574-1, 2	0.014	
; , ·	•		Arocar 1221	11104-28-2	0.013	1
;	•		Arocaor 1232	53469-21-9	10.017	1 -
		1	Arocor 1248	12572-29-6	0.013	* 0.92
		1	Arocor 1254	11097-69-1	0.014	* 1.8
		1	Arocaer 1260	11096-82-5	0.014	
17000		Table CCIVE in 258,41	Acatone	57-64-1	0.28	
XC86.			Aceroonenone	96362	0.010	
			Est2-emyinexyi)primatate	117817	70.28	
			n-Bury alconol	: 71–36–3	5.6	
			Вигуюептурпинием	35 5 87	0.017	
		1	Cyclonexanone	108_94_1 195_50_1	0.088	
		1	1.2-Dichloroperizane	_ 95-50-1 _! 84-66-2	*0.20	•
		,	Disease postaziale		*0.047	
		1	Di-o-outy printing	34-74-2	0.057	* 23
			Din-octyl promates	117-84-0	*0.017	
			Emy acetate	41-78-6	13.24	
		1		100-41-4	10,057	
			Liehenol	57-56-1	5.6	
	-		Messyl isodutyl ketone	108-10-1	0.14	
		1	Lieuws ethys kettine	78-93-3	0.28	
				: 75-09-2		

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(Toxicity Characteristic Leaching Procedure)

1.0 SCOPE AND APPLICATION

- 1.1 This TCLP is designed to determine the mobility of inorganic contaminants in liquid, solid and multiphasic wastes as a preparatory step for subsequent analysis.
- 1.2 If analysis shows that individual contaminants are not present, or are at such low concentrations that the appropriate thresholds could not possibly be exceeded then the TCLP need not be run.
- 1.3 If analysis indicates that a regulated compound is present at such a high level that even after accounting for dilution by other fractions the concentration would be above the regulatory threshold, then the waste is hazardous and it is not necessary to perform any additional analyses.

2.0 SUMMARY OF METHOD

- 2.1 The sample is defined as a liquid vaste if it contains less than 0.5 percent dry solids; after filtration through a 0.6 0.8 micron glass fiber filter it is the TCLP extract.
- or greater than 0.5 percent it is seperated from the liquid phase and reduced in particle size if necessary. The solid phase is extracted with 20 times its weight of an extraction fluid which has been determined by the alkalinity of the sample and filtered.
- 2.3 If compatible, the initial liquid phase of the sample and the extract are combined for analysis. If the liquids are incompatible (i.e. form multiple phases when combined) they are analyzed seperately and the reults combined mathematically to yield a volume-weighted average concentration.

3.0 INTERFERENCES

3.1 See individual analytical methods.

4.0 APPARATUS AND MATERIALS

- 4.1 Agitation apparatus: Capable of rotating extraction vessel end-over-end at a rate of 30 + 2 rpm.
 - 4.2 Bottle Extraction Vessel. Borosilicate glass

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- (Fyrex), HDFS, Folypropylene or polyvinyl chloride.
- 4.3 Filter Holder: Nucleopore Model 410400 or eq-
- 4.3.1 Filters: Borosilicate glass, Whatman GF/F or equivalent; diameter to match Filter Holder.
 - 4.3 pH Meter. Accurate to 0.05 pH units.
 - 4.4 Pan Balance. Mettler PM 600 or equivalent.

5.0 REAGENTS

- 5.1 Reagent Water.Unless otherwise specified DI water is satisfactory.
- 5.2 Hydrochloric acid (1N). Dilute 82.5 ml ACS Reagent Grade HCl to 1 l with DI water.
- 5.3 Nitric acid (1N). Dilute 63.0 ml ACS Reagent Grade HNOs to 1 l with DI water.
- 5.4 Sodium hydroxide (1N). Dissolve 40.0 gm NaOH ACS Reagent Grade Pellets in DI water and dilute to 1 l.
 - 5.5 Glacial acetic acid. HOAc, ACS Reagent Grade.
 - 5.6 Extraction Fluids.
- 5.6.1 Extraction Fluid #1. Add 5.7 ml glacial HOAc to 500 ml DI water; add 64.3 ml 1N MaOH and diluce to 11. The pH should be 4.93 ÷ 0.05.
- 5.6.2 Extraction Fluid #2. Dilute 5.7 ml glacial HOAc to 11 with DI water. The pH should be 2.88 + 0.05.
- 5.7 Analytical Standards as required by individual methods.
- 6.0 SAMPLE COLLECTION, PRESERVATION AND HANDLING
- 6.1 Samples shall be collected using a sampling plan appropriate to the material being tested.
 - 6.2 No preservatives may be added to samples.
- 6.3 Samples may be refrigerated unless irreversible physical change might take place.
- 6.4 TCLP extracts must be analyzed as soon as possible after extraction.
 - 6.5 Extracts for metals analysis must be acidified

EF 2001

with nitric acid to a pHK2. If precipitation occurs the sample may be analyzed without pH adjustment.

7.0' PRELIMINARY EVALUATIONS

Preliminary tests are performed to determine the percent solids, whether or not the sample may serve as its own TCLP extract after filtration and the proper choice of extraction fluid.

- 7.1 Determine the percent solids by veighing a portion of sample into a tared container and transferring to the filter assembly, using a tared suction flask. Apply vacuum until air passes freely through the filter cake.
- 7.1.1 Determine the weight of the liquid phase by subtracting the weight of the suction flask from the weight of the filtrate filled flask. Determine the weight of the solid phase by subtracting the weight of the liquid phase from the weight of the original sample and calculate the percent solids.
- 7.1.2 Dry the filter and solid phase at 100 ÷ 20°C and calculate the Percent Dry Solids:
- 7.2 Percent Dry Solids < 0.5%. The liquid portion after filtration is considered the TCLP Extract.
- 7.3 Determination of Proper Extraction Fluid.
- 7.3.1 Weigh a 5.0 gm subsample of the material into a 250 ml beaker.
- 7.3.2 Add 9.6.5 ml DI water and a magnetic stirring bar.
- 7.3.3 Stir vigorously for 5 minutes and determine pH.
- 7.3.4 If the pH is less than 5.0 use Extraction Fluid #1 for performing the TCLP extraction.
- 7.3.5 If the pH is greater than 5.0 add 3.5 ml LN HCl, mix, heat to 50 $^{\circ}$ C and hold for 10 minutes.
 - 7.3.6 Cool to room temperature and determine the pH.
- 7.3.7 If the pH is less than 5.0 use Extraction Fluid \$1; if the pH is greater than 5.0 use Extraction Fluid \$2 for performing the TCLP Extraction.

- 8.1 Transfer 100 gm of the sample (corrected to the dry weight basis) to the Extraction Vessel.
 - 8.2 Add 2000 ml of the appropriate Extraction Fluid.
 - 8.3 Seal the Extraction Vessel if necessary and start the rotary apparatus.
 - 8.4 Rotate the sample for 18 + 2 hours.

NOTE: Some samples may evolve gases such as CO_{\pm} ; to relieve the pressure, the apparatus may be periodically stopped and the bottle opened and vented.

- 8.5 Following the extraction period filter the slurry using the vacuum filtration apparatus and a Whatman GF/F filter. If necessary the filter may be replaced as needed to speed up the process.
- 9.0 PREPARATION OF THE TCLP EXTRACT
- 9.1 If the original sample was solid and contained no liquid phase, the filtrate obtained in 8.5 is defined as the TCLP Extract.
- 9.2 If the original sample was a slurry and had been filtered during determination of the Percent Solids and the filtrate from 8.5 are compatible, the two solutions may be combined and then defined as the TCLP Extract.
- 9.3 If the two liquid phases are incompatible they shall be analyzed seperately and the results combined mathematically.
- 9.4 After the TCLP Extract has been collected, the aliquot for metals analysis shall be acidified to pH < 2 All other aliquots must be refrigerated below 4°C until analyzed.
- 9.5 TCLP Extracts to be analyzed for metals shall be acid dicested prior to analysis. "Data on undigested extracts alone cannot be used to demonstrate that the waste is not hazardous."

10.0 QUALITY CONTROL

- 10.1 Retain all data and keep available for reference or inspection for a minimum period of three (3) years.
- 10.2 At least one blank shall be run for every 10 extractions in an extraction vessel to determine if any

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- 10.3 A matrix spike shall be performed for each waste unless the result exceeds the regulatory level and the data is being used for that purpose. If more than one sample of the same waste is being analyzed a matrix spike shall be performed for every twenty samples and the average percent recovery applied to the results.
 - 10.3.1 Matrix spikes are to be added after filtration and before preservation to the TCLP Extracts.
 - 10.3.2 Matrix spike levels shall be made at the appropriate regulatory threshold limits.
 - 10.3.3 The purpose of the matrix spike is to monitor the adequacy of the analytical methods and whether matrix interferences exist. If matrix spike recoveries are less than 50%, then the analytical methods are not performing correctly, and the method of standard additions shall be used.
 - 10.3.4 When the contaminant is within 20% of the regulatory level the method of standard additions shall be employed.
 - 10.3.5 The Method of Standard Additions requires preparing calibration standards in the sample matrix rather than in DI Water or a blank solution. Four identical aliquots are taken; known amounts of standard are added to three of them and the fourth is the unknown.
 - 10.3.5.1 The first aliquot should contain approximately 50% of the expected concentration, the second should contain apporximately 100% and the third should contain about 150% of the expected concentration.
 - 10.3.5.2 All four aliquots are maintained at the same final volume by adding DI Water and may require dilution to stay within the instrument's linear range.
 - 10.3.5.3 Prepare a plot or subject data to linear reqression of instrumental signals or externally derived concentrations.
 - 11.0 METHOD PERFORMANCE 11.1 Not applicable.

12.0 REFERENCES

12.1 Federal Register/Vol 55, No. 61/Thursday, March 29,1990/Rules and Regulations 11863 et seq. (40 CFR part 151, Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)).

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ATTACHMENT 2 INSPECTION SCHEDULE

ETICAM Fernley, Nevada

5.10 GENERAL

The purpose of this plan is to describe and delineate the procedures that will be implemented by ETICAM personnel for inspecting their facility. Routine inspections are required at this facility to detect malfunctions, deterioration, operator errors, leaks, and discharges which could cause a threat to human health and/or environmental damage. It is necessary to conduct facility inspections routinely to identify problems and initiate corrective actions before they can create a threat to human health or the environment.

This plan identifies all areas and items to be routinely inspected and fixes the minimum frequency of said inspections. This plan shall be maintained at the facility at all times, and updated as required whenever any changes take place at the facility.

5.11 CORRECTIVE MEASURES

Any conditions noted during the inspections dictated by this plan such as deterioration, malfunctions of equipment or structures, shall be remedied within a scheduled amount of time such that a threat to human health or the environment will not occur. Any conditions noted where damage has already occurred or where an imminent hazard is noted will be corrected immediately.

5.12 INSPECTION LOG

The results of all inspections dictated by this plan shall be entered into the facility Inspection Log section of the Operating Record. Each entry shall include the date and time of the inspection, the name of the inspector, a description of the equipment or structures being inspected, a notation of the observations made, an indication as to whether or not corrective action shall be initiated, and the date and nature of any such repairs or other remedial actions.

5.13 NOTIFICATION

The Director of the Nevada DEP will be notified by phone, followed by a written report if any of the following occur:

 Release of hazardous wastes other than small leakages which can be immediately contained and cleaned up.

2) Fires involving hazardous wastes.

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- 3) Explosions involving hazardous wastes.
- 4) Groundwater contamination resulting from hazardous waste incidents.

5.20 INSPECTION SCHEDULE

The facility will be inspected on a regular basis and in accordance with the following schedule:

	<u>Area</u>		Inspection Frequency		nspe Log	ction
	Recei	ving Area	Once/Day	Piping systems hose couplers, valves, tanks, berms, containments, sumps	(<u>G</u>)	D.I.
	Sump	Inspection	Once/Week	Activation of sump audio alarm	1 (<u>H</u>)	0.1.
)		Handling entrate age)	Once/Operating Shift	Tanks, piping systems, tank level indicators, pumps, valves, sump level sensors, containments, sumps	(<u>I</u>)	0.1.
	Chemi	cal Storage [*]	Once/Operating Shift	Tanks, piping systems, filling manifold, tank level indicators, pumps, valves, sump levels sensors, berms, containments, sumps	(<u>1</u>)	0.1.
	Waste Area	Processing	Once/Operating Shift	Batch treatment tanks, pumps, valves, level sensors, sludge tanks, chemical dosing tanks, neutralization equipment, final purification equipment, drainage pit level sensors, control equipment, berms, containment, and sumps	(<u>K</u>)	0.1.
in the second	Sludg	e Handling	Once/Operating Shift	Filter presses, piping systems, valves, level sensors, compressor sludge containers, control equipment, berms, containments, and sumps	(<u>F</u>)	0.1.

and the	ì				
	All Tanks	Once/(Shift) Weekly	Condition of tank, detect cracks, leaks, corrosion, or erosion which may lead to cracks or leaks, or wall thinning to less than specified Current tank levels	M .)	
	Ventilation* Structure	(Once/Day) Twice/Shift	Duct work, air scrubber, damper setting	(<u>N</u>)	0.1.
	Alarm System	Once/Week	Audio & Visual Signals	(<u>o</u>)	0.1.
	All Tanks	Once	Condition of tak, detect cracks, leaks, corrosion, or erosion which may lead to cracks or leaks	0.1	
	Building* Structure	Once a (<u>month</u>) Year	Walls, ceilings, floors, structural steel	P	
	Silos*	Once/Week	Piping, couplings, level sensors, vent filter valves	Q	
	Main Control Cabinet	Once/Operating Shift	Indicator lights, readouts, indicators, recorders, monitoring system	(<u>R</u>)	0.1.
	Security	Once/(<u>Day</u>) Week	Perimeter of facility, entrances and exits, danger signs, visitors log	S	
	Emergency Equipment	Once/(<u>Month</u>) Day	Empty open head drums, shovels, industrial absorbent, protectiv masks, cartridges, self contain breathing apparatus, tyvek suits, gloves, and boots, goggles, face shields, acid resistant suits, first aid equipment, shower, eyewash sinks, emergency generator	е	D.I.
	(Emergency Equipment)	(Once/Week)	(Eyewash/shower activation (Tinspection)	-1)	D.I.
	Emergency Equipment	Once/(<u>Year</u>) Day	Fire extinguishers - OSHA Standard 29 CFR 1910.157(e)(3) and NFPA Standard 10, Section 4-4, hydrostatically tested as in 29 CFR 1910.157(f) Table L-1 and/or NFPA Standard 10 Table 5-3		D.I.

-	(<u>Emergency</u> <u>Equipment</u>)	(<u>Once/Month</u>)	(Fire extinguishers and charge)	$(\underline{U-1})D_{\cdot}I$.
	All Tanks	Once/Year	Internal Inspection	$(\underline{v})w-1$
	Storage Pad	Once/Day	Condition of containers, pads, sump, evaporation pond, perimeter	w
	Crystallizer/ Evaporation Area	Once/Shift	Crystallizer, centrifuge, boiler, falling film sumps, condition of containers	X
	(* Inspecti	on not mandated by ha	zardous waste regulations.)	
	(Tank Containmen	ts)(Once/Month)	(Condition of containment, det	<u>ect</u>

wall thinning to less than specified)

(Quarantined Totes) (Once)

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INSPECTION PROCEDURES

INSPECTION PROCEDURE

. or leaks.)

cracks, leaks, corrosion, or erosion which may lead to cracks

(Condition of totes, detect cracks leaks, corrosion, or erosion which may lead to cracks or leaks, or

	21,01 HOLLON LICOCADOREL
Receiving Area and entrance drive	All visible pipes, house couplers, valves and tanks and areas and sumps surrounding same will be visually inspected for indications of leakage and the conditions so noted in writing on inspection D.I. (Log G.)
Sump Level Alarms	Activation of all sump alarms once per week. Check audio and alarms systems noted on (Log H) O.I.
Waste Handling Station	Same as pumping station and noted on $(Log\ I)$ O.I.
Chemical Storage	Same as pumping station and noted on $(Log J)$ O.I.
Waste Processing Area	Same as pumping station and noted on $(Log\ K)$ O.I.
Sludge Handling	Same as pumping station and noted

All Tanks

Ventilation Systems

Alarm System

Building Structure

Silos

Main Control Cabinet

Security

Emergency Equipment

Emergency Equipment

Emergency Equipment

Emergency Equipment

All Tanks
R: October 1990

on (<u>Log L</u>) O.I.

All sensor readings on main control board will be noted and visually confirmed, tank levels and conditions of tanks and recorded on Log M.

The scrubber and associated tanks and duct work will be inspected visually for leaks, deterioration and proper operation and noted on (Log N) O.I.

Alarm systems will be checked per the manufacturers specifications and noted on (Log O) O.I.

Structure will be visually inspected for leaks, cracks, corrosion, erosion or deterioration and noted on Log P.

Structures will be visually inspected for corrosion, erosion, deterioration, sensor accuracy and product delivery and noted on Log Q.

To be inspected per manufacturer's directions and noted on (Log R) O.I.

Perimeter of facility, fences, entrances and exits to be visually inspected to insure no security breach. Danger signs and visitors log to be visually inspected to insure they are in good order and all noted on Log S.

Visual inventory and inspection to insure equipment is present, clean and in good working order and data recorded on (Log T) D.I.

Per 29 CFR 1910.157(e) and (f) and NFPA standard 10 and noted on (Log U) D.I.

Activation and inspection of eyewash shower station recorded on (Log T-1) D.I.

Fire extinguisher location and charge noted on (Log U-1) D.I.

Visual inspection to be recorded on

PAGE 5-6

 $(\underline{\text{Log V}}) \text{ W-1.}$

Each tank will be drained and triple rinsed. An operator will then enter the tank through the manway provided and visually inspect the interior of the tank for cracks, leaks, corrosion or erosion which may lead to cracks or leaks, or wall thinning to less than the specified parameters. All findings will be noted on Log V.

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Crystallizer, Centrifuge, Falling Film area and equipment, piping sumps and condition of containers noted on Log X.

Condition of containers, pad, sump and evaporation pond and berm, noted on Log W.

(HOE !) II I

All Tanks

Crystallizer/Evaporation Area

Storage Pad Area

5.40 PREVENTIVE MAINTENANCE

As stated in the introduction to this plan, its purpose is to establish an inspection routine to detect malfunctions, deterioration, leaks, and discharges. This plan shall not be used as a substitute for a routine preventative maintenance plan for facility equipment, etc. required to maintain the facility in top operational condition.

AREA:	OPERATOR T INSPECTION(O.I.)	DATE:
•		Security .

TEMS CHECKED	GRAVI	EYARD	CIENCIES NOTE DAY S Insp. Name:	HIFT	CORRECTED SWING SHIFT Insp. Name:		
	Tubp. name						
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arrels, totes, bags, drums							
Alarms							
fonitors							
•	PRESSURE	FLOW	PRESSURE	FLOW	PRESSURE	FLOW	
Starting Ending							
Sensors							
Containments-Berms							
Ouct systems							
Pumps							
Indicators-recorders							
Safety equipment							
Access to work area							
Working surfaces & floors							
Items needing immediate att	ention:			•			

Each item inspected for leaks, deterioration, proper operation-

DAILY INSPECTION (D.I.)

I do hereby certify that areas											INSPECTOR
were inspected and items neediattention were corrected.	ng		/	_		_		<u> </u>	$\overline{}$	×/	DATE
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EMERGENCY EYEWASH STATIONS										 	
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GAS MONITORS		,									
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Each item inspected for leaks, deterioration, proper operation

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ETICAM Fernley, Nevada

Schedule M, page 1

Month	_ Year	AND AND AND AND AND AND AND AND AND AND	Current	Tank	Storage	Record
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DATE	TIME	INSPECTING PERSON	S 1/2 LEVEL VOLUME	S 3/4 LEVEL VOLUME	S 5/6 LEVEL VOLUME	S 7/8 LEVEL VOLUME	S 9/10 LEVEL VOLUME	S 11 LEVEL VOLUME	S 12 LEVEL VOLUME
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ETICAM Fernley, Nevada

Schedule M, page 2

Month	Year	Current	Tank	Storage	Record
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DATE	TIME	INSPECTING PERSON	S 13 LEVEL VOLUME	S 14/15 LEVEL VOLUME	s 16/17 LEVEL VOLUME	LEVEL	S 20/21 LEVEL VOLUME	S 22/23 LEVEL VOLUME	S 24 LEVEL VOLUME
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ETICAM Fernley, Nevada

Schedule M, page 3

Month	Year	Curr

Current Tank Storage Record

Date ____

Storage Bay

DATE	TIME	INSPECTING PERSON	S 25/26 LEVEL VOLUME	S 27/28 LEVEL VOLUME	CS 5.1/5.2 LEVEL VOLUME	CS 6 LEVEL VOLUME	CS 7 LEVEL VOLUME	CS 8 LEVEL VOLUME	CS 9 LEVEL VOLUME
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ETICAM Fernley, Nevada

Schedule M, page 4

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Current Tank Storage Record

Date ____

Storage Bay

DATE	TIME	INSPECTING PERSON	CS 10 LEVEL VOLUME	C 1 LEVEL VOLUME	C 2 LEVEL VOLUME	C 3	C 4 LEVEL VOLUME	C 29.1 LEVEL VOLUME	C 29.2 LEVEL VOLUME
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ETICAM Fernley, Nevada

OPERATING RECORD

Schedule M, page 5

Month.	Year	Current	Tank	Storage	Record
Date _			Stora	ige Bay	

DATE	TIME	INSPECTING PERSON	E 1 LEVEL VOLUME	E 2 LEVEL VOLUME	E 3 LEVEL VOLUME		E 5 LEVEL VOLUME	E 6 LEVEL VOLUME	H 1 LEVEL VOLUME
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Fernley,	Nevada

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Month.	Year	

Current Tank Storage Record

Date

Storage Bay

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Weekly Inspection - Security

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	Comple	tion Date	1				}	

 $[\]overset{\cdot}{*}$ Items inspected for deterioration

ETICAM

Fernley, Nevada

Schedule Q

Silos; Weekly Inspection

Remedial Action Year ____ Vent Inspecting Filter Date Action Taken Level Valves Initial | Completion Date Couplings Sensors eek# Time Person Piping 1 I 1 1 1 Ī ii ij 3 ij Į, Ħ H ij H 31 11 11 II ij i 11

ETICAM .

Fernley, Nevada

Schedule W

Tank Inspecting Log .

Date ____ Annual Inspection

()1		Initial Tank Wall. Thickness	Managed	Themastors Comments
⊤k No.	Inspector	Tank Wall. Thickness .	Measured Thickness—	Inspectors Comments and Nature of Any Needed Resair
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# ATTACHMENT 3

TRAINING OUTLINE

# 10.00 PERSONNEL TRAINING

ETICAM Fernley, Nevada

#### 10.10 INTRODUCTION

#### 10.11 PURPOSE

Training, in accordance with this section, necessary to ensure that facility personnel instructed to perform their duties in a way that ensures proper and safe operation in compliance with applicable State and Federal hazardous waste regulations. At a minimum, the training program is designed to ensure that facility personnel are able to respond effectively to emergencies. addition, the training program, as written, intended to provide all personnel with sufficient on-the-job training and classroom instruction so that the facility properly conducts and documents proper management of the hazardous generated.

# 10.12 GENERAL REVIEW OF TRAINING PROGRAM

# 10.12.1 ORGANIZATION

The type and level of instruction and/or of onthe-job training shall be that which is required of each employee within their job

# 10.00 PERSONNEL TRAINING

ETICAM Fernley, Nevada

#### 10.10 INTRODUCTION

#### 10.11 PURPOSE

Training, in accordance with this section, is necessary to ensure that facility personnel are instructed to perform their duties in a way that ensures proper and safe operation in compliance with applicable State and Federal hazardous waste regulations. At a minimum, the training program is designed to ensure that facility personnel are able to respond effectively to emergencies. In addition, the training program, as written, intended to provide all personnel with sufficient on-the-job training and classroom instruction so that the facility properly conducts and documents proper management of the hazardous waste generated.

# 10.12 GENERAL REVIEW OF TRAINING PROGRAM

## 10.12.1 ORGANIZATION

The type and level of instruction and/or of onthe-job training shall be that which is required of each employee within their job

classification. The specific areas of training to be provided to employees within the various job classifications is indicated in Section 10.30. Employees within these job categories are listed in Section 10.20. Job descriptions are also provided in Section 10.20. 10.40 details the topics to be covered under "training modules", subject areas the training, assigned to the job categories Section 10.30. As can be seen by a review of the training module list and assignment of modules to the job categories, employees shall receive instruction necessary to insure their familiarity with what is required to properly and safely manage and operate the facility.

# 10.12.2 TRAINER(S) OUALIFICATIONS-REQUIRED Training shall be directed only by a person

knowledgeable in hazardous waste management procedures. Initial training of facility personnel will be conducted by consultants in hazardous waste management. The various training modules are indicated in Section 10.30. The qualifications of the instructors are indicated in Section 10.50.

# 10.12.3 NEW EMPLOYEES/REASSIGNMENT

New employees and those employees who are reassigned to another position, will be trained

within six months after the date of their employment or reassignment. Employees will not work in an unsupervised position until they have completed the training requirements specific to their position.

## 10.12.4 ANNUAL REVIEW

All facility personnel will take part in an annual review of the initial training. Said training will be documented and modified when found to be inadequate. Records of the annual review shall specify the contents of each meeting including, but not limited to, such topics as:

- Changes in emergency coordinators and general operations;
- Any event requiring the implementation of the contingency plan, notification requirements, etc.

# 10.20 FACILITY PERSONNEL JOB TITLES AND DESCRIPTIONS 10.21 TITLES AND PERSONNEL LIST

The following is a listing of job titles for each position at the facility related to hazardous waste management, and the name of the employee filling the position:

# 10.20 FACILITY PERSONNEL JOB TITLES AND DESCRIPTIONS

# 10.21 TITLES AND PERSONNEL LIST

The following is a listing of job titles for each position at the facility related to hazardous waste management, and the name of the employee filling the position:

NAMES(S) OF PERSONNEL IN JOB POSITION

JOB TITLE

TO BE SUBMITTED WHEN HIRED

	JOB TITLE	NAMES OF PERSONNEL IN JOB POSITION
1.	Technical Director	Byron B. Bradd, General Manager
2.	Environmental Manage	r . Byron B. Bradd, General Manager
		Ken Tyler, Regulatory Coordinator
з.	Plant Manager	Tom Medeiros, Production Manager
4.	Plant Operators	George Arnold Duane Macedo John Barnes Cory Mallars David Blackburn Ronald Morris Dave Brown Thomas Murphy Todd Campbell Bob Sherwood Brian Chaffin Randy Smith Ricky Clifton Robert Snyder Brent Jones Eric Woodman Terrance LaPointe Garry Yates
5.	Laboratory Personnel	Linda Barba Paul Mallars Melissa Herzig Dale Myers Mickey Lawler Budd Rude Hsiaowan Lee Virginia Snyder
6.	Maintenance	James Bosley Roy Lee Lozier Gordon Fuller Robert Maughan Kirk Huhtala John Reeder Inez Lambert
7.	Sales	Sue Capre Howard Jackson Jim Roberts
8.	Administration	Debbie Currier, Administration Manager Jerry McKibben, Automations Pat Norman, Secretary Janay Vidovich, Bookkeeper

JOB TITLE

TO BE SUBMITTED WHEN HIRED

10.22 DESCRIPTION OF JOB POSITIONS

The following is a description of the job titles listed in Section 10.21. The description

includes the requisite skill, education; or other qualifications and duties of employees assigned to each position.

#### 1). Position: Technical Director

#### Position Duties:

Maintains knowledge of all applicable hazardous state/federal waste regulations and all of aspects facility operation in accordance with regulatory requirements; assists training of personnel in the proper performance of jobs related hazardous waste activities; acts primary emergency coordinator: responsible for overseeing hazardous waste management program at the plant.

#### Position Qualifications:

B.S. Degree in Engineering Chemistry or equivalent, and at least 10 years experience in technical position and 5 years experience in technical management position. Demonstrated knowledge of EPA and DOT regulations through self education, on the job experience and through attendance at seminars on the subject;

knowledge of all aspects of facility operation and knowledge and authority to direct emergency procedures.

# 2). Position: <u>Environmental Manager</u> Position Duties:

Maintains knowledge of all applicable state/federal hazardous waste regulations. Responsible for ensuring compliance with applicable regulations. Oversees operation of the facility. Hazardous waste related duties include: regular inspection of waste storage and treatment areas, review of manifests, waste analysis procedures, overseeing labelling, reviewing regulatory status facilities and transporters. Acts as alternate emergency coordinator. Maintains compliance with all applicable environmental permits.

## Position Qualifications:

B.S. Degree in Engineering or chemistry or equivalent knowledge of EPA and DOT regulations through self education, on the job experience, and attendance at seminars on the subject; knowledge of all aspects of facility

to direct emergency procedures.

3) Position: 'Plant Manager

Position Duties:

Maintains knowledge of all applicable state/federal hazardous waste regulations and all aspects of facility operations in accordance with the permit requirements; participates in the training of plant personnel under his supervision.

## Position Qualifications:

B.S. Degree in Engineering and/or 5 years experience in a technical or management position. Knowledge of EPA and DOT regulations through self education, on the job experience, and through attendance at seminars on the subject; knowledge of all aspects of facility operation and knowledge and authority to direct emergency procedures.

4) Position: <u>Plant Operators and Laboratory</u> <u>Technicians</u>

Position Duties:

Maintain knowledge of applicable
State/Federal hazardous waste

regulations as they apply to their specific job functions.

#### Position Qualifications:

Knowledge of proper plant operations and characteristics of materials processed. Knowledge of EPA regulations they as pertain to specific job functions. Familiar with emergency procedures and clean operations. Lab technicians to have B.S. or A.S. Degree in Chemistry.

# 10.30 DESIGNATION OF TRAINING MODULES SPECIFIC TO JOB TITLES (CATEGORIES)

The following is a list of the training modules, subject areas, to be conducted for each of the job positions listed. After the initial training period, training of plant personnel is to be conducted by the Environmental Manager. Plant personnel will be trained on the job or in classroom sessions.

JOB	TITLES	TRAINING MODULES TO BE CONDUCTED
1).	Technical Director	All modules
2).	Environmental Manager	All modules
3).	Plant Manager	All modules
4).	Plant Operators	All modules
5).	Lab Technicians	All modules

# 10.40 TRAINING MODULE CONTENTS OUTLINED

- A. WASTE IDENTIFICATION:
  - 1- HAZARDOUS WASTE IDENTIFICATION SYSTEM
  - 2- USEPA HAZARDOUS WASTE IDENTIFICATION SYSTEM
  - 3- SAMPLING AND ANALYSIS PROCEDURES
- B. SHIPMENT OF HAZARDOUS WASTE:
  - 1- USDOT/USEPA SHIPPING REQUIREMENTS
    - -Manifests
    - -Labeling Drums
    - -Marking Drums
    - -Placarding Trucks
    - (Specifically USDOT regulations 49 CFR Parts 171, 172 part 173.)
    - -Packaging
- C. WASTE HANDLING AND TREATMENT:
  - 1- WASTE HAZARDS ASSOCIATED WITH HANDLING (Properties of Wastes)
  - 2- SAFETY PRECAUTIONS SAFETY EQUIPMENT
  - 3- SPILL CONTAINMENT AND CLEAN UP
  - 4- WASTE ACCEPTANCE PROCEDURES SAMPLING/TESTING
  - 5- WASTE PROCESSING PROCEDURES
- D. WASTE STORAGE
  - 1- PROPER STORAGE OF HAZARDOUS WASTE
     -spill detection and clean up
     -labeling and marking
- E. RECORD KEEPING
  - 1- INSPECTION RECORDS
  - 2- MANIFEST RECORDS
  - 3- TRAINING RECORDS
  - 4- WASTE ANALYSIS RECORDS
- F. INSPECTION REQUIREMENTS
  - 1- FACILITY INSPECTION PLAN
- G. EMERGENCY PROCEDURES
  - 1- CONTENTS AND INTENT OF CONTINGENCY PLAN
  - 2- IMPLEMENTATION
  - 3- NOTIFICATION PROCEDURES
  - 4- SPILL CONTAINMENT AND CLEAN UP

- 5- EVACUATION PROCEDURES
- 6- COMMUNICATIONS
- 7- ARRANGEMENTS WITH AUTHORITIES REVIEWED
- 8- REVIEW OF EMERGENCY COORDINATOR'S ROLE

#### H. EMERGENCY EQUIPMENT

- 1- REQUIRED PER REGULATION
- 2- AVAILABLE AT ETICAM
- 3- LOCATIONS AT ETICAM
- 4- USE OF
- 5- INSPECTION OF
- 6- REPLACEMENT/REPAIR

#### I. EMERGENCY COORDINATOR DUTIES

- 1- ROLE/AUTHORITY/KNOWLEDGE (REQUIRED)
- 2- RESPONSIBILITES
- 3- AVAILABILITY
- 4- REVIEW OF ALL ASPECTS OF CONTINGENCY PLAN

#### J. TRAINING PROGRAM

- 1- INTENT
- 2- CONTENT
- 3- REQUIRED RECORDS AND ANNUAL REVIEW

It is estimated that all modules will take from one to four hours to conduct. Training will be provided at least once each year, or more frequently as deemed necessary by management. Initially training will be conducted in conference type sessions followed by onthe-job training by supervisory personnel.

# 10.50 INDIVIDUALS QUALIFIED TO TRAIN

The initial classroom training will be carried out by a qualified individual or consulting firm. The Environmental Manager will carry out classroom and on-the-job training of new personnel and will conduct annual reviews of training. He will maintain his

knowledge of regulations and procedures through selfstudy, on the job experience and by attending seminars on the subject. From time to time the Environmental Manager may rely on selected individuals as their expertise is required to train facility personnel.

## 10.60 TRAINING RECORDS

The Environmental Manager will maintain documents and records at ETICAM which include the following information:

- Job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job.
- A written job description.
  - A written description of the type and amount of both introductory and continuing training given.
- Records documenting training.
- An annual review of the initial training is held.
- Training records are maintained and kept until closure of the facility.

ATTACHMENT 4

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CONTINGENCY PLAN

S/1 2/2 /90 P/92

# DISPOSAL CONTROL SERVICE, INC.

#### WASTE AND MATERIAL REMOVAL AGREEMENT

difornia corporation ("Contr (Nov				· · · · · · · · · · · · · · · · · · ·
(Nev	ada)	corporatio	on ("Customer").	
Agreement For Services. ( Work") described as follows: _	Contractor st Labor,	nall furnish all materia Equipment a	l, supplies, and equipment and and supplies as a	perform the work and services (th needed for
Emergency Re	sponse	and Clean-U	Jp.	
AUTHORIZED E	MERGEN	CY PERSONNEI	j:	John Kobza
	Phil	Harrison	Byron Bradd	John Reeder
	Mick	y Lawler	Tim Cobb	Dave Brown
. Compensation 1 Fee for Services. Custon	ner shall pay	Contractor a fee for th	e Work in the amount and in the	ne manner set forth below:
Usual and Cus	tomary	Fees as Out	lined In Emerger	ıcy Response
Price List,	(Rev.	1/1/91)		

- 2.2 Additional Charges. Unless otherwise provided in the Work Statement or Cost Sheet, Customer shall be responsible for all disposal fees, taxes, tariffs, and charges levied by any storage or disposal facility ("Facility") or any government or regulatory authority in connection with the handling, removal, cleanup, transportation, or disposal of any waste and/or material in connection with the Work.
- 2.3 Compensation for Additional Services. If Contractor performs services or provides materials in addition to those specified in the Work Statement, and no provision for compensation therefor has been made, Customer shall pay Contractor therefor at Contractor's then standard rates for such services and materials.
- 2.4 Billing Errors; Late Payment. All invoices submitted by Contractor to Customer shall be deemed correct unless Customer objects thereto in a writing setting forth its objection thereto within fifteen day of the invoice date, and Customer subsequently proves such invoice to be in error. In the event Customer fails to pay any amount due hereunder within fifteen from the date of the invoice, at the option of Contractor, (a) that amount shall be deemed delinquent and Customer shall pay a late charge thereon, or on any unpaid portion thereof, at the rate of ten percent per annum computed from the date on which such amount became delinquent and/or (b) this Agreement may be terminated by Contractor upon five days written notice of such delinquency to Customer.
  - 3. Rights and Responsibilities of Customer.
- 3.1 Cooperation. Customer shall comply with all reasonable requests and requirements of Contractor in connection with the Work, shall permit Contractor, its employees, subcontractors, and agents, full and unencumbered use of and access to all or any portion of the property on which the Work is to be conducted and any related premises owned or controlled by Customer, and shall provide a safe and secure working environment.
- 3.2 Providing of Information. Customer shall provide Contractor with all information, materials, documents, and otherwise reasonably requested by Contractor to prepare for, commence, carry out, or complete the Work, including, without limit, information pertaining to the description, specifications, characteristics, constituents, and location of anywaste and/or material in connection with the Work; information required by any Facility or any governmental or regulatory authority; licenses, permits, or other approvals issued by any governmental or regulatory authority to Customer, insurance proceeds and policies; any known hazards or unique circumstances pertaining to the property on which the Work is to be conducted or to any waste and/or material; and information necessary to properly and accurately complete manifests and related documents. Customer agrees to update and supplement all such information as warranted throughout the term of this Agreement.
- 3.3 Insurance Benefits. Contractor shall be entitled to receive the full benefit of any insurance benefits or coverage that may be available to or for the benefit of Customer in connection with the Work, to the extent permissible under said policy or policies.
  - 3.4 Representations and Warranties. Customer represents and warrants that:
- (a) the description, characteristics, specifications, and constituents of any waste and/or material in connection with the Work, which have been provided to Contractor, are complete, true, and correct in all material respects, and completely and accurately advise Contractor of the hazards and risks known by Customer, its employees or agents, incident to the handling, removal, cleanup, transportation, storage, and/or disposal thereof;
- (b) Customer will comply with all applicable statues, ordinances, orders, rules, and regulations of governmental and regulatory authorities; and
- (c) Customer has sole title to or legal control of the property on which the Work is to be conducted and any waste and/or materials in connection wit the Work, and is under no legal restraint (statutory, regulatory, or administrative) or condition which will prohibit or restrict in whole or in part the Work or the transfer of possession of any waste and/or material to Contractor.

- 4. Rights and Responsibilities of Contractor.
- 4.1 Performance of Services. Contractor shall perform the Work in the manner and to the extent set forth in the Work Statement, shall devote such time, personnel, and equipment thereto as it deems necessary to accomplish the Work, and shall determine, in its sole discretion, the method, details, and means of performing the Work.
- 4.2 Independent Contractor. Contractor is an independent contractor, and under no circumstances and for no purposes whatsoever shall Contractor be deemed to be a partner, agent, or employee of Customer in its performance hereunder. Contractor may, in its sole discretion, employ and be solely responsible for supervising and controlling such subcontractors, assistants, representatives, and otherwise as it deems necessary to perform the Work.
- 4.3 Additional Testing. Contractor shall have the right (but not the obligation) at any time and at Customer's sole expense to inspect, sample, analyze, or test all or any portion of any waste and/or material in connection with the Work.
- 4.4 Representations and Warranties. Contractor represents and warrants to Customer that it will conduct the Work in a safe and workman like manner and in compliance with all applicable statutes, ordinances, orders, rules, and regulations of governmental and regulatory authorities.
  - 5. Indemnification.
- 5.1 Contractor. Contractor shall indemnify and hold harmless Customer, its present and future officers, directors, employees, agents, and assigns, from any and all damages, liabilities, penalties, lines, forfeitures, demands, claims, causes of actions, settlements, suits, and costs and expenses incidental thereto (including court costs and costs of defense, settlement, and reasonable attorneys' fees), arising out of or resulting from death or bodily injury to any person, from property damage (including any loss of use), from contamination of or adverse effects to the environment, or from any violation or alleged violation of any statute, ordinance, order, rule, regulation, or requirement of any governmental or regulatory authority, caused by or arising out of, directly or indirectly, any grossly negligent or willful act or omission of Contractor in the performance of the Work.
- 5.2 Customer. Customer shall indemnify and hold harmless Contractor, its present and future officers, directors, employees, agents, subcontractors, and assigns, from and against any and all damages, liabilities, penalities, fines, forfeitures, demands claims, causes of actions, settlements, suits, and costs and expenses incidental thereto (including court costs and costs of defense, settlement, and reasonable attorneys' fees), arising out of or resulting from death or bodily injury to any person, from property damage (including any loss of use), from contamination of or adverse effects to the environment, or from any violation or alleged violation of any statute, ordinance, order, rule, regulation, or requirement of any governmental or regulatory authority, caused by or arising out of, directly or indirectly, (a) any breach by Customer, its employees or agents, of any covenant, condition, representation, orwarranty hereunder, (b) any grossly negligent or willful act or omission of Customer, its employees or agents, or (c) Contractor's reliance upon any information or materials provided by Customer, its employees or agents, which is or proves to be inaccurate or incomplete.
  - Limitations on Liability.
- 6.1 General. Under no circumstances shall Contractor be responsible for or liable to Customer, or to anyone who may claim any right due to a legal relationship with Customer, for any act or omission by Contractor, its employees, subcontractors, or agents, in the performance of the Work, unless such acts or omissions are due to the gross negligence or willful misconduct of Contractor. The total liability of Contractor, its directors, officers employees, subcontractors, and agents, hereunder is expressly limited to the amount of the compensation paid to it hereunder. In no event shall Contractor, its directors, officers, employees, subcontractors, and agents, be liable for consequential damages of any kind for any reason, including, without limit, fines, penalties, surcharges, or operating or other losses.
- 6.2 Limited Scope of Services Offered. Notwithstanding any provision or inference herein to the contraty, Customer acknowledges and agrees that:
- (a) the Work is limited to the performance of technical remedial, removal, cleanup, and transportation operations, as set forth in the Work Statement. Under no circumstances shall Contractor be deemed to be providing consulting advice, information, guidance, or otherwise regarding the proper scope or extent or the adequacy or inadequacy or any remedial, removal, or cleanup actions, compliance with applicable laws, regulations, or orders, the appropriate disposal or storage facility, or any other matter not pertaining directly to the technical and operational aspects of the Work; and
- (b) Contractor's responsibility for disposition of any waste and/or material in connection with the Work is limited to transport and delivery to the Facility or any alternate Facility identified on the appropriate hazardous waste manifest. Upon delivery of the waste and/or material to said facility, Contractor shall have no further responsibility or liability with respect thereto. If, for any reason, the Facility or any alternate Facility does not accept the waste or material, Contractor shall, at Customer's sole expense, return the same to Customer at the property on which the Work is being conducted, without further obligation or liability therefor to Customer.
- 7. Insurance. Contractor shall secure and maintain throughout the term of this Agreement (a) a policy or policies of public liability and property damage insurance with limits not less than One Million Dollars, providing coverage for claims and liabilities involving bodily injury or death and property damage or destruction, and (b) workers' compensation insurance covering all of its employees.
- 8. Confidentiality. Contractor and Customer shall treat as confidential and not make any use of or disclose to others, during or subsequent to the term of this Agreement, any trade secrets or other confidential information, including, without limit, knowledge, techniques, processes, improvements, chemical compositions or quantities, or strategies (the "Confidential Information"), heretofore or hereafter disclosed by one party to the other and/or discovered, learned, or otherwise acquired by or which come into the possession of said other party, its officers, employees, subcontractors, or agents. Notwithstanding the foreging, this Agreement shall not limit the right of either Customer or Contractor to disclose to others or use in any manner Confidential Information which either party is required to disclose by applicable law, crwhich either party can show (a) has been published and become part of the public domain, other than through the acts or omissions of the other party, its employees, subcontractors, or agents, (b) has been furnished or made known to the other party by third parties as a matter of legal right and without restriction on its disclosure, or (c) was in said party's possession (as provable by written records) prior to the disclosure thereof by the other party.
- 9. Force Majeure. Neither Contractor nor Customer shall be deemed to be in default hereunder if their performance is delayed or becomes impossible because of any act of God, war, earthquake, fire, strike, sickness, accident, civil commotion, epidemic, act of government or its agencies or officers, or any other legitimate cause beyond the control of the parties. Upon the occurrence of any of the foregoing events, the term hereof shall be extended for a period equivalent to all or any part of the period that any such events or conditions shall breakail.

- 10. Attorneys' Fees. In the event of litigation or other proceedings to enforce or interpret any provision of this Agreement, the prevailing party shall be entitled to recover court costs and reasonable attorneys' fees, costs, and necessary disbursements, in addition to any other relief to which the party may be entitled. It is an including the state of the party may be entitled. It is an including the state of the party may be entitled. It is a state of the party Control of the State of the
- which may be necessary or proper to effect and carry out this Agreement.
- 11.2 Assignment This Agreement and the rights and obligations of Customer hereunder are not assignable without the prior written consent and approval of Contractor.
- 11.3 Entire Agreement This Agreement constitutes the entire agreement between the parties with respect to its subject matter. No course of dealing among or between the parties shall be deemed effective to modify, amend, or discharge any provisions of this Agreement or any rights or obligations of any person under or by reason of this Agreement.
  - 11.43 Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of California.
- 11.5 Binding Agreement. This Agreement shall inure to the benefit of and be binding upon each of the parties hereto and their successors and assigns respectively.
- 11.6 Notice. All notices, requests, demands, and other communications to be given or delivered hereunder shall be in writing and shall be deemed to have been duly given or delivered upon being personally delivered, or upon the second day after mailing by certified mail, postage prepaid, return receipt requested, addressed to the parties at the addresses set forth on the signature page or to such other address as the party previously may have provided in writing pursuant to this paragraph.
- 11.7 Severability. Any provision of this Agreement which is determined to be prohibited or unenforceable shall be ineffective without invalidating the remaining provisions, and such remaining provisions shall remain in full force and effect as if this Agreement had been executed with the ineffective provision eliminated.
- 11.8 No Waiver. Any waiver by any party of a breach of any provision of this Agreement shall not operate as or be construed to be a waiver of any other breach of any other provision of this Agreement, and the failure by either party to exercise any right under this Agreement shall not be deemed to be a waiver of such right.
- 11.9 Investigations. No investigation by Contractor, its officers, employees, subcontractors, or agents, shall in any way abrogate any of the representations and warranties made by Customer hereunder or relieve Customer from any liability that Customer would otherwise have for breach of any of the representations, warranties, covenants, and conditions made by it contained in this Agreement or any documents or materials furnished or to be furnished by Customer herewith, or limit in any respect any of Contractor's remedies with respect to any breach thereof.
- 11.10 Conflict. In the event of a direct and irreconcilable conflict between any provision of this Agreement and the Work Statement, the provisions of the Work Statement shall control.

"CUSTOMER"

Executed by the parties hereto as of the day and year first above written.

NOTICE: Contractors are required by law to be licensed and regulated by the Contractors' State License Board. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, 3132 Bradshaw

ETICA. Road, Sacramento, CA. Mailing Address: P.O. Box 26000, Sacramento, CA 95826. "CONTRACTOR" Disposal Control Service, Inc.

Зу MNOR. 1369 W. 9th Street Address:

Upland, California 91786 Attn: Phil Gentile, Jr.

Address:

Attn:

MATERIALS & SERVICE SCHEDULE

# DISPOSAL CONTROL SERVICE 1991 Price List - effective January 1, 1991

#### TRANSPORTATION COST

EQUIPMENT	HOURI	LY RATE
40' TRAILER & TRACTOR W/OPERATOR 40' FLATBED & TRACTOR W/OPERATOR 18' FLATBED TRUCK W/OPERATOR PICK-UP TRUCK/SERVICE VEHICLE	\$	75.00 75.00 60.00 15.00
50 BBL VACUUM TRUCK & OPERATOR 70 BBL VACUUM TRUCK & OPERATOR 120-130 BBL VACUUM TRUCK & OPERATOR 130 BBL STAINLESS STEEL VACUUM TRUCK & OPERA 130 BBL PVDF-LINED VACUUM TRUCK & OPERATOR	TOR	67.50 70.00 75.00 80.00 90.00
5 CUBIC YARD DUMP TRUCK & OPERATOR 18-24 CUBIC YARD DUMP TRUCK & OPERATOR		60.00 75.00
ROLL-OFF TRUCK & OPERATOR ROLL-OFF TANDEM TRUCK & OPERATOR EMERGENCY RESPONSE UNIT		75.00 95.00 68.00

VEHICLE WASH-OUT FEES VARY DEPENDING UPON THE DISPOSAL SITE AND ARE NOT LISTED. COST + 15%.

STRAIGHT TIME WILL BE CHARGED FOR SERVICES PERFORMED BETWEEN 6:00 A.M. AND 6:00 P.M.

SATURDAYS WILL BE BILLED AT 1-1/2 TIMES NORMAL RATES.

SUNDAYS AND HOLIDAYS WILL BE BILLED AT DOUBLE TIME.

INTERSTATE TRAVEL PERMIT COSTS WILL BE CHARGED AT COST PLUS 20%.

DISPOSAL OR TREATMENT COSTS WILL BE BILLED AT COST PLUS 15%.

SUB CONTRACT OR NON-LIST MATERIALS OR SERVICES COST + 20%.

# OPERATIONAL EQUIPMENT COSTS

EQUIPMENT ROLL-OFF SLUDGE BIN	\$	RATES 210.00/MONTH
(15,20,30 AND 40 CUBIC YARD SIZES) ROLLOFF VACUUM TANK (ON SITE DAILY RENTAL) 2500 GAL STAINLESS STEEL		110.00/DAY
3000 GAL BLACK IRON CASE "550" FRONT LOADER/BACKHOE W/OPERATOR TRACKHOE WITH OPERATOR DECONTAMINATION CENTER (NON ASBESTOS) 150 CFM AIR COMPRESSOR 10 or 20 CFM COMPRESSORS PRESSURE WASHER 5 KW GENERATOR "HEPA" VACUUM UNIT 1 1/2 -2 1/2 DIAPHRAGM PUMPS DRUM CRUSHING, TRANSPORTATION & DISPOSAL		116.00/HOUR 150.00/HOUR 60.00/HOUR 150.00/DAY 85.00/DAY 170.00/DAY 125.00/DAY 125.00/DAY 125.00/DAY 80.00/HOUR
TO CLASS I FACILITY POWER SAWS		18.00/DRUM 50.00/DAY
SAFETY EQUIPMENT		RATES
EPA LEVELS OF PROTECTION:	\$350	0.00/MAN/PER DAY
(FULLY ENCAPSULATED GAS TIGHT SUIT W/SCBA)	\$160	0.00/MAN/PER DAY
(POLYTYVEK THROUGH FULLY ENCAPSULATED SUIT BUT NEVER GAS TIGHT W/SCBA) LEVEL C (TYVEK THROUGH SARANAX W/AIR PURIFYING RESPIRATOR)	\$ 28	3-125/MAN/ DAY*
*THE DAILY RATES FOR LEVEL C PROTECTION VAR PERSONAL PROTECTIVE EQUIPMENT ENSEMBLE REQU		EPENDING UPON THE
GRADE "D" BREATHING AIR (224 CUBIC FOOT CYLINDERS) BARRICADES		5.00/EA 4.00/DAY
TNSTRUMENTS MERCURY VAPOR ANALYZER ORGANIC VAPOR ANALYZER, PID COMBUSTIBLE GAS INDICATOR MAGNETOMETER DRAGER AIR PUMP DRAGER COLORIMETRIC TUBES RADIATOR DETECTOR AIR SAMPLING PUMP	150 88 78 40 COS 50	0.00/DAY 0.00/DAY 5.00/DAY 5.00/DAY 0.00/DAY ST + 30% 0.00/DAY

## SAMPLING AND ANALYSIS

TO AN CAMPIE	
SAMPLE PROCESSING, PACKAGING AND SHIPPING 30.00/SAMPLE	E
### ### ##############################	

*  $\chi=320$  PREPARATION CHARGE IS REQUIRED FOR EACH SAMPLE SUBMITTED FOR ANALYSIS OF METALS.

ANALYSIS OF A SPECIFIC HAZARD WASTE STREAM IS REQUIRED IN ORDER TO DETERMINE THE MOST APPROPRIATE RECYCLING, INCINERATION OR DISCOUNT METHOD.

#### MATERIALS

DRUMS		COST	
5 GAL DOT 37A-80 CAN, METAL OR POLY	\$	14.00	EA
55 GAL DOT 17H STEEL DRUM, OPEN TOP		42.00	
55 GAL DOT 17E STEEL DRUM, CLOSED TOP		42.00	EA
55 GAL DOT-E 6637 POLY DRUM, CLOSED TOP		46.00	EΑ
55 GAL DOT-E 7768 POLY DRUM, OPEN TOP		72.00	EA
85 GAL DOT RECOVERY DRUM		178.00	
DRUM LINER (PLASTIC)		3.00	
DRUM RING & BOLT, 55 GAL		15.00	
DRUM RING & BOLT, 85 GAL		18.00	
DRUM BUNG		6.00	
RING & LID		22.00	
30 GAL POLY		42.00	
14 GAL POLY		35.00	
20 GAL POLY		33.00	
30 GAL FIBER		29.50	EA
ABSORBENTS, ETC.	,		
SUREPAK, 4 CUBIC FOOT BAG	\$	15.00	
POZZALONIC ASH, 1 CUBIC FOOT BAG		9.00	
POZZALONIC ASH, 1 TON BAG		140.00	
CEMENT, 100 POUND BAG		22.00	
SANDBAGS, EMPTY		4.00	EΑ
MISCELLANEOUS MATERIALS			
ROLL OF PLASTIC DRUM LINERS, 50 COUNT	\$		
SHEET PLASTIC, VISQUEEN, 22' X 50'		99.00	
HAZARDOUS WASTE LABELS		1.00	
ADDITIONAL TYVEK		8.50	
ADDITIONAL POLYTYVEK		13.50	
pH PAPER/BOX		15.00	
SHRINK WRAP		30.00	
COTTON GLOVES		2.00	
RUBBER GLOVES			PAIR
HAZARD TAPE		35.00	
CHEMIST		64.00	
PROJECT MANAGER		55.00	
LEAD TECHNICIAN		46.00	
FIELD TECHNICIAN		39.00 35.00	
ADMINISTRATIVE CLERK		33.00	MOOK

ANY TRANSPORTATION OR LABOR EXCEEDING 12 CONTINUOUS HOURS OF SERVICE, WILL BE SUBJECT TO 1-1/2 TIMES LIST RATES. SUNDAYS AND HOLIDAYS WILL BE BILLED AT DOUBLE TIME RATES. PER DIEM OF \$60.00 PER DAY PER PERSON WILL BE CHARGED FOR FIELD PROJECTS LOCATED MORE THAN 50 MILES FROM THE DCS OPERATING OFFICE.

**PRICES SUBJECT TO CHANGE WITHOUT NOTICE

ON ALL ORDERS FOR DELIVERY, THERE WILL BE A \$45.00 DELIVERY CHARGE ON ALL ORDERS THAT TOTAL LESS THAN \$300.00  $\,$ 

# ATTACHMENT 5

# STORAGE AREA SPECIFICATIONS

This Section includes

Revised (November 19, 1990)
pages 8-1 thru 8-12 of Section 8:00
of the original permit

(The remainder of Section 8.00 is included as Attachment 10, "Tank Plans and Specifications")

See Attachment 7 and Drawings submitted with the original application in Section 14.00

New facility specifications are in Section 8.0 of the Class II Permit Modification Request Revisions dated July 11, 1990

# ETICAM Fernley, Nevada

This section describes the design features.

structures, equipment, and procedures used at ETICAM to prevent hazards during material unloading, transfer, storage and treatment operations.

### 8.10 GENERAL

Special procedures and equipment must be used at regulated treatment/storage facilities to prevent runoff of spills and/or leaks of reclaimable material to the environment. prevent contamination of surface or groundwater supplies, mitigate the effects of equipment failure and power outages, and prevent undue exposure of personnel to hazardous materials. ETICAM has addressed such environmental safeguards to prevent the occurrence of any of the above situations.

## 8.20 LOADING/UNLOADING

## 8.21 GENERAL

Materials are received from various types of delivery vehicles. Transfer will be effected either by bulk delivery from a tank truck or from a cargo truck or from containers to the storage tanks. The cutents of portable tanks and containers are pumped to the storage tanks while on the truck. Only empty portable tanks are to be stored

outside of permitted areas. During unloading operations, spills are unlikely since all unloading takes place within a contained area; however, in the event of a release to the environment, standard industrial absorbents are located nearby.

The unloading area is designed with a segregated area for cyanide discharge. This area is separately bermed and drained to prevent accidental mixing of reactive products in the event of a spill. (See Plans and Specifications, Section 14 of the original permit application)

In the event of a manifest discrepancy requiring the quarantine of a shipment as described in Section 3.31, the vehicle with the shipment will be quarantined on the entrance drive or in receiving bays. These bays are designed to address all requirements of 40 CFR Section 264.175 which specifies containment requirements for the management of containers.

Empty containers will be available to transfer hazardous waste in the event of structural defects or leaks in shipped containers. All containers used to transport waste to the facility will meet the appropriate DOT specifications. (Note that each container will have a specific DOT registration number which is different for each manufacturer)

## 3.22 BULK - UNLOADING/LOADING

Wastewater will be delivered to the plant by specialized trucks. For transportation of small volumes. containers with a capacity of up to 550 gallons will be provided. Larger volumes will be conveyed by tank trucks.

Trucks will be loaded such that acid and cyanide waste waters will not be transported on the same truck. The unloading station is completely enclosed, and any spillage is contained by a special drainage system inside the building and is eventually treated. This system eliminates the possibility of wastes leaving the building.

Wastes are gravity fed or pumped to the tanks in the storage area, or pumped directly to the reactor. Waste streams not requiring treatment may be pumped directly to the sludge tanks (clarifiers), effluent tanks or evaporation system. Transfer will be through permanently installed piping or temporary hoses. When hoses are used, an operator will be present during the transfer process, and hoses will be within spill containment areas. Wastes are pumped from tanks in the waste storage area to the waste processing or recovery area for treatment.

Special lock-out systems will be used to prevent accidental mixing of the wastes. Each coupling will have a key lock and electrical lock-outs controlled by the shift operator. To further guard against accidental

mixing of wastes. only responsible and trained personnel will be in charge of tank unloading. These tank unloading personnel will be responsible for checking the wastes and operating the discharge valves. Portable tanks and containers will be discharged by gravity or pumped. Except for special situations as noted in section 2.41, the containers will stay on trucks while being emptyed. The only time tanks will normally be removed from trucks is after they have been completely emptied.

Since containers are normally not removed from the truck while full, no additional equipment beyond what is cited above is required to prevent hazards in unloading process. Each truck is parked in a bermed and sloped unloading area depending on the type of waste being hauled. Each sloped unloading area drains into one of two 3168 gallon holding spillage tanks. The unloading area is constructed of concrete and sealed with an epoxy sealant. The Cyanide unloading area drains into S-11 and the acid/alkaline unloading area drains into S-11.1. In this way contamination of the water supply is highly unlikely. Since all safety and unloading equipment are designed for gravity flow, or pumping rather than pressurizing the tank, safety precautions would be unaffected by a power outage or equipment failure.

# 3.30 STORAGE/TREATMENT AREA PARAMETERS

#### 8.31 GENERAL

All storage areas are within the roofed building and therefore, are not subject to precipitation buildup which would have required special provisions for run-on or run-off control. Therefor there will be no accumulation of liquids (precipitation) requiring analysis. Spills will be handled as described in Section 2.33.

## 8.32 TANK STORAGE/TREATMENT AREA

## 8.32.1 STORAGE TANKS

There will be 28 tanks in the existing liquid storage area, and three tanks in the new solids receiving area.

Each tank will have capacities as shown in Table 8.2.

Unloading procedures are outlined in Section 8.22.

The 28 liquid waste storage tanks are situated within five containment areas (see Site Plan Sheet C (floor plan)). Tanks for acids, alkalis, and cyanide wastewaters will each be stored in separate containment areas. The solids unloading hoppers and dissolution tank are located in a concrete pit inside the new solids unloading building addition, (See revised floor Plan, Sheet D in section 8 of the Class II Permit Modification Request Revisions dated July 11, 1990).

Each containment area is constructed with a concrete floor and will be surrounded by a concrete berm which will

provide a minimum secondary containment capacity equal to 110% of the volume of the largest tank contained therein. Each containment area will also be equipped with a collection sump to collect spilled or leaked materials. The collection sumps will be equipped with a level indicator which will indicate when the sump contains liquid. The liquid in the drainage pit will be analyzed, and then pumped to an appropriate storage tank.

Each storage tank is equipped with a liquid level indicator to signal when the tank is full and prevent overfilling.

# 8.32.2 STORAGE TANKS

The total capacity of the waste storage tanks will be 123.024 gallons in the liquid storage area, and 13,500 gallons in the solids receiving area. There will be a total of 28 tanks in the liquid storage area; ten with a capacity of 6600 gallons and 18 with capacity of 3168 gallons. The new solids receiving building addition will contain two solids receiving hoppers having a capacity of 5,000 gallons, and a dissolution tank with a capacity of 3,500 gallons. (see the floor planon Sheet D for tank locations). The containment volume of each containment area is indicated on Table 8.1 of this Section.

Table 3.1

Containment Area Volumes for Storage Tanks

Area	Tank No's	<u>Contents</u>	Tank <u>Volume</u> (gals)	Containment Volume (gals)
1	S-1 thru S-2	Alk/Cyanide	13,200	52,000
2	S-3 thru S-6	Alkaline	26,400	52,000
3	S-7 thru S-10	Acid	26,400	36,000
1	S-11 thru S-15	Alk/Cyanide	15,840	34.900
	S-16 thru S-28 (Including S-1		41,184	58,000
Solids Receiving Area				
	H-1 thru H-1 & D-1	Sludges	13.500	177,415

#### 8.32.3 TREATMENT TANKS

The entire area containing the treatment tanks T-1 thru T-7 and the effluent tanks E-1 thru E-6 (Detox, Dewatering, Drying) has a containment of approximately 130,000 gallons, which is greater than the volume of the tanks in the area. An 8 inch curb separates the detox room from the dewatering room and will contain greater than 110% of any reactor (8,000 gallons). Detox has over 11,000 gallons of containment capacity.

# 8.33 CONTAINMENT AREA ACCUMULATION

Liquids which accumulate in any of the proposed secondary containment areas will be handled as follows:

4 74 _

- a) If the exact source of the leaked or spilled material can readily be determined, the material will be identified accordingly. It will be transferred to an appropriate tank or container as applicable.
  - b) If the source or identity of the spill cannot be determined, a sample will be collected and analyzed to see if it exhibits any of the four characteristics of a hazardous waste (ignitability, corrosivity, reactivity or TCLP), or to see if it contains any of the hazardous constituents (40 CFR 261 Appendix VII) of any listed wastes stored in the particular containment area.

In either case (a) or (b) above, any accumulated liquid in secondary containment areas will be removed as soon as possible to preclude any possibility of overflow.

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# 8.40 PRECAUTIONS RELATING TO FLAMMABLE WASTES

Only waste waters and sludges (as defined by EPA 40 CFR 260.10) are to be received at ETICAM's facility. These waste streams are non flammable and non combustible. Therefore, special precautions for flammable wastes are not needed. However, as a precaution, "No Smoking" signs are posted about all unloading areas and throughout the plant.

# 8.41 PRECAUTIONS RELATING TO REACTIVE WASTE

The primary reactive wastes handled at ETICAM are sulfide and cyanide bearing wastes which could generate toxic gases, if exposed to appropriate pH conditions. Storage tanks containing these materials are maintained in totally separately diked storage areas at ETICAM, completely separate from other types of incompatible (acid) wastes, so that there is no possibility of mixing during storage.

The only areas where sulfides or cyanides will be stored are Storage Areas 1 and 4 as shown on the Floor Plan (Site Plan C). Area 1 cyanide storage tanks are segregated from all other waste types by it's containment wall (berm). Area 4 includes both alkaline and cyanide special metal bearing wastes which are compatible and

which are segregated from other waste types (acids). Therefore, the CN storage tanks are segregated from incompatible wastestreams (the acid wastewaters).

The potential consequence of mixing a strong acid with a sulfide or cyanide waste would be the generation of hydrogen sulfide (H2S) or hydrogen cyanide (HCN) gas.

In order to guard against this potential, acid or acid bearing material will never be stored within the cyanide storage areas, and cyanide bearing waste will never be stored in an acid storage area. Some acid waste will contain metal complexed cyanides which are highly stable and present minimal hazards, and these would be stored in an acid area since they would be incompatible with other cyanide wastes. Further, all tanks and storage areas are vented through a scrubber system to control potential emissions to the environment.

In order to insure that reactive wastes are stored and treated safely, methods and procedures are used to protect reactive materials from experiencing conditions that may cause the waste to undergo adverse reactions. The following precautions have been taken:

 All tanks, pipe lines and reactors are dedicated to insure that there is no co-mingling of products beyond the point of discharge.

- All conclive wastes are stored in their own berms.
- 3. Storage and treatment designs have been reviewed by a Nevada professional engineers to insure that they comply with National Fire Protection Association buffer zone requirements for tanks.
- 4. A separate unloading area has been designated for sulfide or cyanide wastes. This area is bermed and drained separately from the remainder of the unloading area to prevent possible interaction of sulfide or cyanides and acids due to spills. This area will also be used for the quarantining of any unreconciled sulfide or cyanide waste loads.
- 5. All cyanide designated storage or treatment areas are alarmed with cyanide detectors which monitor syanide levels and trigger an alarm at the OSHA limit (TLV of 5.0 ppm), ar as specified in the facility air permit which may change from time to time.

## 3.50 EQUIPMENT FAILURE

## 3.51 POWER FAILURE

Since ETICAM is a storage and treatment facility only, the effects of equipment failure and/or power outages are minimal. However, the following equipment will be installed to mitigate the effects of power outages. In the event of a brief power interruption, security is not affected. A back-up system is in effect and will maintain the motion detectors and perimeter alarms and cyanide and hydrogen sulfide detectors in operation for a period of approximately four (4) hours.

A 150 kilowatt stand-by engine generator set has been installed which will provide power to the main control panel (alarms, level sensors, control systems, cyanide detectors, etc), the emergency lighting system, the air pollution scrubbers, and the air compressor (to power air-driven diaphragm pumps). The engine generator set will be diesel powered with at least 24 hours of diesel supply, and will be automatically brought on-line with an automatic transfer switch in the event of power failure.

TABLE 8.2

# Wastewater Treatment and Storage Tank Specifications

Tank ²	Description of use	Type (construction)	Capacity cu. meters callons	Approximately Dimensions (lgth. x width x hgt. or dia. x hgt.) in m and feet	Wall Thickness (MM)
S-1 thru S-2	collecting basin cyanide	polypropylene cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottam
S-3 thru S-6	collecting basin alkali	polypropylene cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottam
S-7 thru S-8	collecting basin acid	polypropylene cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottcm
S-9 thru S-10	collecting basin acid	polyvinyl chloride cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottam
S-11 thru S-12	collecting basin spe- cial waste water cyanide	polypropylene cylindrical vertical	12.2 3223.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottcm
S-13 thru S-14	collecting basin spe- cial waste water	polypropylene cylindrical vertical	3223.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottcm
S-15 thru S-28	collecting basin spe- cial waste water acid	polypropylene cylindrical vertical	12.2 3223.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottom
S-29A S029B	collecting basin clear	polypropylene cylindrical	12.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottam
S-30 thru S-33	collecting basin treated water	polypropylene cylindrical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottam

Tank	Description of use	Type (construction)	Capacity M (callons)	Approximately Dimensions (lgth. x width) x hgt. or dia. x hgt.) in m and feet	Wall Thickness (MM)
T-1 thru T-3	treatment basin	PVC steel armouring PVC lining	27.6 7291.9	6.1x2.4x2.0 20.0x7.9x6.6	7 side 7 bottcm 5 steel
T-4	neutraliza- tion basin	PVC steel armouring PVC lining	10.8 2853.4	2.8x2.1x2.0 9.2x6.9x6.6	7 side 7 bottcm 5 steel
C-1 thru C-2	sludge tank	polypropylene cylindrical vertical	27.1 7159.8	2.4 x 6 7.9 x 19.7	24 side 20 bottom

Note: Specifications for the virgin chemical storage and feed tanks, the electrolytic system tanks, facility pumps, and wastewater effluent polishing equipment is provided in Appendix G.

- 1 Source: ETICAM
- 2 Location shown on Floor Plan (Site Plan C).
- 3 Two tanks are to be constructed of PVC-HSV and are to be used to hold some of the concentrated acids.

# Wastewater Treatment and Storage Tank Specifications Continued

Tank No.	Description of use	Type (construction)	Capacity gallons	Approximate Dimensions (lgth. x width x hgt. or dia. x hgt.) in m and feet	Wall Thickness (MM) or U. S. Equivalent (inches)
C-3 and C-4	sludge tank	polyethylene cone	7,000	10'1" Dia. X 19'1" Ht	
D-1	dissolution tank	steel rubber lined	3,830	8' X 8' X 8'	0.25 steel 0.25 rubber
H-1 and H-2	solids hopper	steel UHMW lined	5,000	12'L X 12'W X 4'D X 15'H	0.25 steel
T-5	alkaline/ cyanide reactor	FRP cone bottom	3,500	12' X 7' cone	0.5 side 0.75 bottom
T-6 and T-7	alkaline/ cyanide reactor	steel rubber lined	8,140	16' X 8' X 8'6"	0.25 steel 0.25 rubber
<del>-4*</del>	alkaline/ cyanide reactor	steel rubber lined	3,830	8' X 8' X 8'	0.25 steel 0.25 rubber
S-29A* and S-29B*	collecting basins clear	polyethylene cone	4,000	8' Dia. X 10' cone	
	pug mill	steel '	800	11'8" X 4'2" X 3.5' Ht	0.25 steel
	dryers #1, #2, #3	steel	1 cu. yd.	6' X 3' X 1.5' Ht	0.25 steel
	dryers #5 & #6	steel	5 cu. yds.	9' X 5' X 3' pyramid	0.25 steel

^{*} Replaced existing tanks.

#### 8.60 DESCRIPTION OF TANKS

## 3.C1 GENERAL

Tanks used at ETICAM to store and/or process the hazardous waste streams are indicated on the revised Process Flow Diagram (Sheet B), and revised Site Plan (Sheet D). The types (construction), usage, capacities, dimensions and wall thickness of the tanks are provided in Table 8.2. Compatibility of tank construction material with that of the stored material is also discussed in this section. The type and construction of tank foundations and supports are discussed in Section 8.63. Tank feed systems, safety cutoffs, bypass systems, and pressure controls are shown on the Process Flow Diagram (Section 14.00 of the original permit application, and in section 8.0 of the Class II Permit Modification Request Revisions dated July 11, 1990).

All tanks are vented through the scrubber system and are maintained at sightly negative pressure at all times. This system maintains a maximum negative pressure of 15 MBAR (0.22 psig). Based on the DVS manufacturing specifications, tanks cannot collapse at these pressures. Additionally the tanks do not have sealed lids.

All tanks at ETICAM will be subject to the routine inspection described in Section 5.00. Any problems noted during such inspections will be corrected prior to reuse of any defective tanks or associated equipment.

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# 8.62 DESIGN STANDARDS/WASTE COMPATIBILITY

The design and construction of the tanks used to store and/or treat hazardous waste at ETICAM are appropriate for the material handled. The waste-water storage and treatment tanks will be manufactured in accordance with international standards for construction of tanks. Said specifications are included in Appendix H of the original permit application. Specifications for new tanks are given in the Tank Assessment in Section 11 of the Class II Permit Modification Request Revisions dated July 11, 1990.

All storage and receiving tanks for cyanide, alkaline, and acid waste waters are constructed from polypropylene. Four acid storage tanks are constructed from PVC-FRP. All other acid storage tanks are polypropylene. Construction materials, wall thicknesses and other information about the tanks is provided in Tables 8.2.

Polypropylene is widely used in electroplating rinse tanks because it has proved to be resistant to the chemicals used. Storage and receiving tanks will only be used to hold materials at room temperature. Most of the waste waters accepted at ETICAM will consist of dilute solutions.

Polypropylene tanks are widely used for the types of chemicals and concentrations which will be accepted at ETICAM. Table 8.3 contains chemical resistance data derived from a table provided by the manufacturer. The manufacturer's complete table is provided in Appendix H of the original permit applicatin, and in Section 11 Tank Assessment of teh permit revision. This information indicates that the storage and receiving tanks will be resistant to the wastewaters typically accepted at ETICAM.

The estimated corrosion or oxidation rates of these tanks is negligible. Therefore, no wall thinning will occur during normal use.

Lab technicians who carry out the waste analysis procedures outlined in Section 3.00 will determine which tanks to store waste in. These personnel will be familiar with manufacturer's specifications for tank/material compatibility. If they encounter a concentrated corrosive material in the course of the waste analysis procedures they will determine whether the material should be stored in the polypropylene tanks at that concentration. They may specify that the material be diluted before being stored, if necessary. For concentrated acid solutions, lab personnel will determine whether better resistance to the material will be found in the PVC-FRP tank or the polypropylene tank, and store the material accordingly.

Treatment tanks used at ETICAM are constructed of polypropylene (with and without reinforcing), fiberglass or welded steel plates lined with rubber or PVC. The rubber lining will protect the steel from corrosive material stored and treated in the tanks. Structural specifications and corrosion resistance for these tanks is included in the section 11 Tank Assessment of the Class II Permit Modification Request Revisions dated July 11, 1990.

All wastewater treatment and storage tanks will be tested periodically by ultrasonic testing in order to detect wall thinning due to corrosion.

If wall thinning is found in any tank, the history of the tank will be reviewed in an attempt to determine the cause. If wall thinning is significant, the tank will be removed from service.

#### 8.63 TANK FOUNDATIONS AND SUPPORTS

The design of tank supports, bracing, and foundations are reviewed in this section. The information is intended to demonstrate that the proposed supports, bracing, and foundations will adequately and safely support the waste storage and treatment tanks at ETICAM.

A typical storage/treatment tank support and foundation system are shown on the attached drawing. This system will be designed to resist seismic forces in accordance with the Uniform Building Code, 1982 Edition. Fernley lies in Seismic Zone 3, a region with a high probability for a seismic event. The support system will prevent tank overturning and will resist sliding of the tank by transference of lateral forces to the foundation. All design and construction will be performed in accordance with applicable codes and ordinances.

# Table 8.3

CHEMICAL RESISTANCE DATA from Foema, Dr. Gotzelmann KG: Chemi Kalienbestandigkeit der Polyolefine HDPE and PP

	Temperature		
Chemical Description	( <u>o</u> (C)	LINER PVC	RESISTANCE*
On children boson por the contract of the children boson por the chi			
Hydrochloric Acid HCL	60	+	+
Chromium Trioxide Cr2O3	100	_	0
50% water	40	+	+
50% water	60	0	0
Chromium Trioxide/Sulfuric Aci Cr ₂ O ₃ + H ₂ SO ₄ + H ₂ O	d/Water		
50%/15%/35%	40	+	
50%/15%/35%	60	0	<u></u>
Potasium Cyanide, KCN			
10%	40	+	+
10%	60	0	+
Acetic Acid CH ₃ - COOH			
25%	40	+	<del>+</del>
25%	60	+	+
25% - 60%	60	+	+
80%	40	0	+
80%	100		<del></del>
85%	80	-	0
85%	100	_	- 0
95%	40	0	O
Sodium Chloride, NaCl	60	0	+
Sulfuric Acid/Nitric Acid/Wate	r		
48%/49%/3%	20	0	_
48%/49%/3%	40	Ō	-
50%/50%/0	20	0	-
50/50/0	40	-	
10/20/70	50	+	0
10/87/3	20	0	
50/31/19	30	+	

# Table 8.3

CHEMICAL RESISTANCE DATA from Foema, Dr. Gotzelmann KG: Chemi Kalienbestandigkeit der Polyolefine HDPE and PP

# (Continued)

	Temperature		
	<u>o</u> (C)		RESISTANCE*
Chemical Description	(C)	<u>PVC</u>	<u> </u>
Sodium Hydroxide, NaOH			
40%	40	+	+
40%	60	0	+
50/60%	60	+	+
50%	100	-	+
Nitric Acid, HNO3			
30%	50	+	+
30/50%	50	+	-
40%	70		-
40%	90		<del></del>
48%	80		-
70%	20	+	-
70%	60	0	<b>→</b>
98%	20	-	<del></del>
98%	60	-	_
Hydrochloric Acid, HCl			
30%	40	÷	÷
30%	60	0	+
30% (ueber)	20	+	<del>†</del>
30%	60	0	0
30%	80		_
Sulfuric Acid H ₂ SO ₄			
40%	20	+	+
40%	40	+	+
70%	20	+	+
70%	60	0	Ο .
80 - 90%	40	+	0
96%	20	0	O
96%	60	-	-

^{*} Liner Resistance Rating (To indicated material at indicated temperature):

^{- =} unsatisfactory 0 = satisfactory + = good

## 8.1 BACKGROUND INFORMATION

Expansion to ETICAM's Fernley facility will occur in two specific areas:

- 1. Liquid Waste Treatment
- 2. Solids Receiving, Storage, and Handling

The facility is currently permitted for storage and treatment of both liquid and sludge waste streams. Most of the expansion will involve additional waste liquid treatment tanks. The remaining portion will be the installation of bulk sludge receiving hopper tanks.

There will also be moderate ancillary improvements to the facility that will be required in conjunction with the resulting increase n waste processing capacity. The following Narrative will describe those facilities and processes which are currently in existence at the site, as well those which will be made in the initial expansion of the facility.

#### 8.2 EXISTING FACILITIES

#### Liquid Waste Receiving

Incoming waste solutions are off-loaded in a receiving bay located on the west side of the facility. See Sheets A, C, and D. The bay is divided into three distinct sections which are separated by a berm in order to segregate and prevent mixing of incompatible wastes. The floor is sloped to contain ash water or spills and direct them into Page 11 - 1

spill tanks. The first spill tank is provided for cyanide wastes, and the second for non-cyanide alkaline or acid waste. Acid or alkaline solutions are off-loaded in the west bay and the north end of the receiving bay. The south end of the east receiving bay is used exclusively for cyanide and highly alkaline wastes which are compatible with cyanides.

The wastes are further segregated in the storage bay by metal constituents, concentrations, pH, and cyanide content. This separation is designed to ensure that metal types are separated so that the resultant product sludges are suitable for reclamation at smelters. Each segregated storage area is provided with secondary containment, capable of holding the entire contents of all tanks with in each containment area.

Wastes are unloaded into storage through gravity fed hoses and pipes. An additional provision is included to allow pumping directly to a treatment tank when required for special situation where cross mixing of wastes is critical, or immediate processing is desirable.

No additional storage tanks in the storage bay are included in this phase of the expansion.

# Treatment Chemical Receiving

Treatment chemicals used in the processing of the waste solutions are also off-loaded into bulk storage tanks from the receiving bay. Hose connections are provided for the following chemicals:

- 1. Sodium hydroxide
- 2. Sodium Hypochlorite
- 3. Lime (calcium or magnesium hydroxide)
- 4. Sulfuric Acid
- 5. Hydrochloric, sulfuric, or mixed acids
- 6. Ferric chloride
- 7. Spare reagent tank

The incoming treatment chemicals are transferred by gravity to chemical storage tanks which are segregated by containment areas. The containment areas are segregated by material compatibility. The spare reagent tank is within it's own separate area, so that it may be used for any given material.

Reagents are pumped from storage into smaller dosing tanks for use in the treatment process.

#### Liquid Waste Processing

Waste solutions are pumped from storage, or directly from receiving into acid or alkaline/cyanide treatment tanks.

Neutralization of corrosive, cyanide or sulfides is first performed, followed by metal precipitation. Generally metals are precipitated in the hydroxide and to the lesser Page 11 - 3

extent the sulfide form. There are three 7292 gallon mixed reactors, and one 2853 gallon neutralization reactor. One reactor (T-3) is designated for cyanide treatment, and the others are for acid or alkaline wastes.

#### Plant Scrubber System

Three "multi-stage" scrubbers are used to control potential air emissions from the operations. A three stage Reco-jet scrubber is connected to all tanks in the storage bay, and a two stage packed tower scrubber is connected to the reactors and sludge tanks. These scrubbers are set up for both acid and alkaline scrubbing solutions to handle both acid and alkaline vapors; such as hydrogen sulfide/cyanide, or ammonia.

The sludge dryers also have independent exhaust gas scrubbers.

All internal scrubbers discharge into the main building two stage scrubber, which additionally collects air from the building.

Each scrubber has one or more recirculation tanks associated with it. These tanks hold scrubbing reagents, and these liquids do not become wastes until they are transferred (blown down) from the tank to a storage or treatment tank.

#### Sludge Handling

Treated waste batches are pumped from treatment tanks into sludge holding tanks from where they are filtered to remove the metal bearing sludges. There are two sludge holding tanks with a capacity of 7159 gallons.

# Filtration and Filter Cake Drying

Treatment sludges are separated in one of two filter presses. A 2 meter continuous belt press has been removed from service and will be replaced with two smaller plate and frame presses with this expansion. Each press has a capacity of approximately 10 cubic feet, which can be expanded by adding more plates. Filter cake from the presses is collected in open portable containers for transfer to the sludge dryers. Three dryers of four originally planned are in operation. Each dryer has a capacity of about 3 cubic feet of sludge per hour. Dried sludge is sampled and placed into containers for shipment to smelters. Both steel drums and bulk bags are used.

## Ion-Exchange and Evaporation

Filtrate from the filter presses is transferred to a pH adjustment reactor where acid or caustic is added to neutralize the treated effluent prior to passing through the ion exchange system and into the effluent holding tanks. Ion exchange is not used for all effluents due to the high salt content present.

# 8.0 STORAGE AND TREATMENT AREA

The effluent tanks are sampled and analyzed for effluent levels prior to discharge to the sewer, or for internal process limits prior to final evaporation.

The effluent tanks and evaporation system are operating under interim status because the residue salt was subsequently reclassified a listed hazardous waste by the "Derived From" rule after the facility was in operation. Additionally, the evaporator/crystallizer and associated gas/oil fired boiler are regulated by the facility's Air Pollution Control permit, which addresses potential air emissions from these units.

The system consists of a falling film evaporator in series with a spray evaporator/crystallizer; both working as a double effect evaporator for energy efficiency.

Condensate from the secondary condenser is returned to the plant for reuse or discharged to the sewer.

The crystallizer concentrate is centrifuged to separate salt residues which are stored in containers on a contained storage pad prior to shipment to landfill, or other reclamation sites.

# 8.3 NEW FACILITIES

# Liquid Waste Processing

The existing T-4 reactor will be replaced with a larger fiberglass reactor, and three new rubber lined steel reactor tanks will be installed for handling reactive sulfide, cyanide or alkaline wastes. Additionally, filtrate tanks S-29A and 29B will be replaced with larger crosslinked polyethylene cone bottom tanks.

The new bulk solids receiving and storage room will have two bulk receiving hopper tanks and a dissolution tank for resuspension or dissolving sludges. The following table summarizes the volumes and use of the new tanks:

#### NEW TANK SUMMARY

Tank Number Vo	lume. gallons	<u>Use</u>
T-4 (increase)	977	Acid/Alkaline
T-5	3,500	Alkaline/cyanide
T-6	8',140	Alkaline/cyanide
T-7	8,140	Alkaline/cyanide
C-3	7,000	Slurry
C-4	7,000	Slurry
H-1	5,000	Sludges
H-2	5,000	Sludges
D-1	3,830	Dissolution
S-29A/29B (incr)	1.554	Filtrate
Pug Mill Mixer	800	Filtrate

Total addition 50.941 gallons

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New additional dosing tanks will be installed to service the new reactors. Acid dosing tanks will not be piped directly to the cyanide reactors as an added measure to prevent accidental acid addition to a cyanide solution.

A second new two stage scrubber will be installed to handle the added reactors, sludge tanks, and dissolution tank.

Cyanide piping will be rerouted over alkaline or cyanide storage areas. Double walled piping systems will be used wherever cyanide piping passes over acid containment areas.

#### 8.4 SLUDGE HANDLING

Filtration equipment will be relocated to the Metal Recovery room, and the drying equipment will be placed in the Dewatering room. Sludge and solids receiving will be conducted in the new building addition.

## Sludge Storage

Two new cone bottom slurry tanks, C-3 and C-4 will be installed in the Metal Recovery room along with the existing tanks C-1 and C-2. See sheet D. The new slurry tanks will have a capacity of 7,000 gallons each.

#### Liquid Filtration and Filter Cake Processing

Two new filter presses will be installed along with the two existing presses. The 2 meter continuous belt press

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has been removed and will be replaced with the new plate and frame presses.

Filter residue sludges and solids will be transferred in portable hoppers to the driers. Filtrate is transferred to treated effluent holding tanks, adjusted for proper pH if needed and sampled for final analysis. This filtrate will be discharged to the sewer under the facility Water Discharge Permit, or transferred to the evaporator crystallizer.

# 8.5 EVAPORATOR/CRYSTALLIZER

The evaporator/crystallizer system is operating under interim status. There are no expansion details included with the 25 % tank expansion; class 2 modification.

Plans for additional evaporation capacity are included in the Class 3 modification request concurrently submitted with this application.

## 8.6 BULK SLUDGE RECEIVING

#### Receiving

The sludge receiving area will consist of two bulk hopper tanks, each with a capacity of 25 cubic yards (5,000 gallons equivalent). The maximum size sludge shipment is normally less than 20 cubic yards, thus allowing for freeboard to account for the angle of repose which may vary from load to load.

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Both hoppers will be able to receive bulk shipments from end dump trucks, roll-off hoppers, or by emptying containers into the hopper. Note that both facility generated filter cakes and received filter cakes will be processed through his system. These hoppers/feed systems will eventually replace the original smaller dryers. Containers will be sampled according the waste analysis plan prior to accepting the shipment for unloading.

Each hopper tank is quipped with an unloading conveyor system. The solids can be transferred to the drying room for further processing as required, or unloaded into the dissolution tank D-1. The hopper will be equipped with an enclosure to cover the top and be vented to the new bag house dust collector. Since most filter cakes contain over 50 % moisture, dust is not expected to be a problem.

The truck level of the receiving building is sloped to drain into the unloading pit which has a sump at the low point. All wash water, or free liquids present in the load will drain into this sump, and be transferred to the plant for processing. This liquid may be stored in containers temporarily if further analysis is required to determine the proper and safe treatment scheme required. Special attention was given to potential ground water contamination from this operation. An impervious clay liner was placed under the building foundation, with a leak detection access pipe at a low point.

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Any accumulated liquids which might seep through the floor can be detected and removed. Additionally, the sump is constructed with a secondary liner so that operators can inspect the space below the sump for potential leakage.

The entire concrete containment structure including the lower portion of the sump was constructed using chemical resistant water stops at all concrete joints.

The finished floor and walls are further coated with an epoxy sealer. All concrete joints are caulked with a chemical resistant sealer.

# Emission Control Systems

Potential dust emissions from the hoppers, conveyor drop points, and dryers will be connected to a bag house dust collector system. The details of this system design have been submitted as part of an Air Pollution Control Permit application. The descriptive portions of this application are included in section 12 of this application.

The dissolution tank will be covered and vented to the new two stage scrubber designed to control potential emissions from handling sulfide or cyanide sludges.

# Bulk Sludge Drying

Product filter cakes will be dried to specified moisture levels and containerized for shipment to customers including smelters. Some product materials will be blended to generate larger quantities of uniform composition. Depending upon customer specifications and market conditions, anywhere from a minimum of 2 separate batches to as many as several dozen batches will make up a minimum customer shipment. Blending serves two primary purposes:

- 1. Produces larger quantities of uniform composition, subsequently reducing analytical costs as well as providing a more efficient customer feed stock.
- 2. Allows for a reduction of unwanted components such as chlorides or phosphates which can be reduced when blended into a larger product mass.

ETICAM product material which is an effective substitute for commercial products may be shipped as a product with out a manifest. The facility must manifest as hazardous waste any sludges for disposal which do not meet customer specifications for product.

Blending of product sludges is allowed as long as the blended product material meets customer specifications and blending is performed in accordance with a separate waste blending agreement between ETICAM and the NDEP. This blending agreement is not a part of this permit.

The variety of metals and materials which may be received and reclaimed is infinite, and the product material utilization and recovery will differ for each customer.

Additionally, the customers requirements are continually changing as the economy and metals market change. As a result, the blending agreement is subject to future revisions based on changing conditions.

If liquid hazardous wastes are blended, they should be from similar processes, with similar metals or they should enhance or otherwise be utilized in the treatment of a batch. The facility will document the rationale for mixing wastes during the treatment process wherein the smallest component added to the final mixture for which documentation is required will constitute greater than 10% of the mxture. These records will be maintained at the facility and will be available for inspection and are considered confidential.

#### Conveyor Operation:

Sludges are transported from the receiving hoppers to the drying area by conveyors. A cross conveyor will be used to allow blending from both hoppers. Each dryer is rated at approximately one cubic yard per hour depending on the moisture content. The maximum rate is expected to be about 1.5 tons per hour. The new dryers will be equipped with a bag house dust collector.

The existing dryers will remain in operation to handle smaller quantities and specialty products. Provisions will also allow unloading the hoppers directly into containers for shipment off site.

#### Sludge Stabilization

Not all sludges produced may necessarily suited for reclamation. For example, the residual from a metals extraction process to reclaim metals from sludges or other solid waste residues will be essentially metal free, and

may not have any inherent reclamation value. This includes salts from the evaporator crystallizer system will require stabilization treatment before they can be sent to a landfill for disposal.

These materials must be treated and stabilized to meet the requirements of Part 268-Land Disposal Restrictions. These standards require that waste materials be treated and or stabilized to meet minimum treatment standards as measured by the Toxicity Characteristic Leaching Procedure (TCLP). Stabilization is a form of treatment for non liquid wastes such as sludges and solids. The treatment is usually identical to liquid treatment except that different design of the mixed treatment tank is needed. Stabilization generally involves the addition of silicates, dements, and other compounds capable of chemically bonding with metal compounds contained in the These additives are mixed, and the chemical bonding process takes place aver several hours to several days. The entire mix is stabilized, and nox further separations or processing are generally required.

All sludges destined for stabilization are sampled prior to acceptance for shipment to the facility, or if produced by the facility, a sample is taken for a treatability evaluation. This evaluation will consist of a demonstration of the stabilization process needed to meet the required standards. Stabilized waste will be sampled Page 11 - 13

#### 8.0 STORAGE AND TREATMENT AREA

prior to shipping off site, and analyzed for free liquids using the paint filter test, and tested TCLP constituents, and for total cyanides where appropriate.

The sludge stabilization process will consist of a Pug Mill fed by the sludge conveyor. The pug mill will hold approximately one cubic yard (200 gallons) of sludge and stabilization compounds which will be added to the feed to the pug mill where they are mixed. Depending on the material and required treatment level, simple mixing of cement may be adequate, or a more exotic mixture of treatment chemicals and stabilizing agents may be required.

Both the dried sludges and pelletized material will be placed in containers for storage and eventual shipment. A conveyor/bagger will be used for this operation.

#### 8.7 ANCILLARY IMPROVEMENTS

In addition to those modifications described thus far, some additional minor improvements will be constructed as part of the facility expansion.

Compressors - One additional air compressor and air dryer will be installed in anew compressor room. The existing compressors will be relocated to this room also. This will provide adequate compressed air supply for the additional controls, pumps and filters.

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Electrowinning - An electrowinning process area will be added as shown on sheet D. This will be used for removing the pure elemental metal directly from high strength solutions such as chromic acid, cyanide solutions, and nickel solutions. The resultant solution will then be transferred back to storage or treatment to fully reduce the residual metal content.

This process will handle recyclable materials and produce a elemental metal product for sale in the metals market. In accordance with Part 264.1 (g)(2) and 261.6(b)(1), Which stipulates that "(the recycling process itself is exempt from regulation.)"

<u>Peroxide and Ozone</u> - Peroxide is used for oxidation of cyanides, and organic chelating agents such as EDTA, formaldehyde, and other complexing agents used in plating solutions.

Carbon Columns - Two carbon columns will be used to remove trace organic constituents in emergency situations. An example is the presence of a solvent is discovered, and removal is necessary to protect plant equipment. The waste solution would be pumped through the carbon the remove the organic. Spent activated carbon would be managed as a hazardous waste using the waste code of the waste stream from which it is derived from. Additionally,

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the carbon could be described by one of the "D" codes if a listed waste code did not apply.

<u>Sumps</u> - All sumps will be lined with a chemical resistant liner and have level alarms to alert operators when liquids are present.

<u>Dump Tanks</u> - Two existing dump tanks are used in the crystallizer for holding crystallizer contents during maintenance, and for segregating non listed from listed waste streams. No new dump tanks are planned with this class 2 modification. Note that these tanks are currently operating under interim status.

Centrate Tanks - One centrate tank is used to collect centrate from the crystallizer centrifuge, and as a feed tank for the crystallizer. No new centrate tanks are included with this class 2 modification. This tank is also operating under interim status.

#### Safety and Health Considerations:

- 1. All new concrete floor surfaces and sumps will be coated with chemical and traffic resistant coatings.
- 2. The bulk receiving storage hoppers will have low rise sides that extend from the finished floor elevation to railing height. A "grizzly" screen will be over the hopper to separate large debris which might enter the system. This will also provide safety from personnel falling into the hopper.

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- 3. All processing areas will be outfitted with sumps and level indicators to intercept spillage of wastes and rinse water. All new tank storage areas will have secondary containment to meet all applicable county, state and federal regulations. This containment will consist of concrete berm walls creating an enclosed perimeter which will have a volume greater than 110 % of the volume of the largest tank in the containment area.
- 4. All new building areas will be provided with fire sprinkler networks and the associated appurtenances. All fire protection equipment will meet Factory Mutual standards.
- 5. Safety showers and eye wash stations will be provided in all new waste processing areas, in addition to hose bibs for equipment wash water.
- 6. Electrical outlets will be provided for portable equipment.

Site Improvements - Paving and grading improvements will be made to the existing site as shown on sheet A. These improvements will accommodate the design of the new receiving facility to allow paved areas for trucks to maneuver. The new paved areas will include curving to direct rain waster or potential spillage to one low point where containment measures can be instituted. Note that all shipments are required to be inside the unloading bays

The sewer discharge line has also been removed from the plant and will be reinstalled outside the South side of the new solids receiving building. New piping, flow monitoring and sampling will be installed in accordance with requirements set by Fernley Utilities.

#### 8.8 LEAK DETECTION SYSTEM

All tank containment areas are provided with float alarms at the bottom of each sump which will detect the presence of any release of hazardous waste or the accumulated lique a the secondary containment system. The float alarm is connected to a central alarm panel which also signals the facility's alarm company.

Any spills or accumulated liquids will be removed within 24 hours, or in as timely a manner as possible to prevent harm to human health and the environment, if it can be demonstrated that removal of the waste cannot be accomplished within 24 hours.

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<u></u>	PLANS
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See Appendix 7, pages 8-1 through 8-20, and Blueprints submitted with the Application in Section 14.00

# ATTACHMENT 5 STORAGE AREA SPECIFICATIONS

	11/15/91
	DAYLENE HENDRICKS FIB 784-3294
	MARKET VALUE: 398,056.58 ON 11/19/91
anner a ministra Caron Ag ainsi mahasa asis a a a antam	DUE DATE: AGREGATENT WAS EXECUTED OCT 23, 1989
	30 DAYS AFTER ESTABLISHMENT OF TRUST
	CLOSURE PLAN:
	EQUIPMENT NOT YET INSTACLED
Fig. 2	B) SCUDGERACEIVING 5,000 SET  (A) DISSOCUTION TANK 3,500 SET (2#1.50/921
	PAGE 11-15  20 TONS @ 285. BO/DN
	+ 2500 Set wesh @ 1.10/sel
	35 hos @ 3 workers x 35/hr
/	2 samples at 4t15=/snmp1
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	× 1540 PNI (Page 11-15) = \$19,250
	I

<b>→</b>	REDUCTIONS TO CEOSURE EST:
	A) BILIOCUTION BANK  A) 3,500 gel @ 1.50 \$ 5,250
	B) SCUBGE REFEIVING (I NOT MUGACIED)
3	20 TONS ( 285.50 = # 5, 7/2
	2500 get wash @ 1,10 = \$12,750
	35 hos x 3 men x 30/n = 3,150 2 samples @ 4150 = 300
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	C) SALT DISPOSAL
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	- 40,051 REDUCTION
	948,319 × 3/5 = 568,991
	CURRENT VALUE = 398,056 , DIFFERENCE = 170,93.

### SCHEDULE B

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EPA ID Number: NVD 980 895 338

ATTACHMENT 6
CLOSURE PLAN

#### 11.10 INTRODUCTION

#### 11.11 GENERAL

This plan describes how ETICAM will close its hazardous waste treatment and storage facility in a manner that:

- Minimizes the need for further maintenance and
- Controls, minimizes or eliminates post-closure escape of hazardous waste, hazardous constituents, or waste decomposition products to the ground, or to surface waters or to the atmosphere.

This plan sets forth all of the steps required to be taken by ETICAM to properly and completely close its hazardous waste storage facility. These steps include:

- A description of how and when the facility will be partially (if applicable) and ultimately closed.
- 2. An estimate of the maximum inventory of wastes in storage at any given time.
- A description of the steps needed to decontaminate hazardous waste equipment during closure.
- 4. A schedule for final closure.
- 5. Certification requirements by an independent registered engineer.

### 11.20 HAZARDOUS WASTES STORED AT ETICAM

#### 11.21 DESCRIPTION AND LIST OF WASTES

ETICAM is a hazardous waste treatment and storage facility located at 2095 Newlands Drive East in Fernley, Nevada.

The facility accepts, stores and treats various materials which are considered to be hazardous wastes as described in its Part B Hazardous Waste Permit.

The facility stores and treats hazardous wastes in tanks and containers. Generally, wastes stored in tanks are aqueous and are processed through the facility's treatment systems. Containerized waste includes liquids, sludges, and residual salts from the evaporation of treated effluent. The following is a general breakdown of the categories of wastes accepted at ETICAM:

	Waste Category	EPA Was <u>Cod</u>	te e	EPA Proce <u>Code</u>	ess
1)	Metal Containing Liquids and Sludges	F006, D006, D008,	D007	S01, T01,	
2)	Cyanide Bearing solutions; plating solutions (non-cyanide) Includes precious metal solutions	F007, D002,		S01, T01	S02
3)	Other corrosives; acids, alkalis, plating & stripping solutions (non cyanide), Includes precious metal solns	D002		S01, T01	S02

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#### 11.22 MAXIMUM INVENTORY

The estimated maximum inventory of hazardous waste and treated effluent in storage/treatment at any given time at the facility is based on the maximum tank volume as follows:

#### Tank Inventory:

No. & Volume	Contents:	Maximum <u>Inventory:</u>
4- 6,600 gal 13-3,168 gal	acid solutions	67,584 gal
4- 6,600 gal 2- 3,168 gal	alkali solutions	32,736 gal
3- 7,292 gal 2- 8,140 gal 2- 3,830 gal 2- 7,160 gal 2- 7,000 gal 1- 3,500 gal	process tanks	77,636 gal
6-6,600 gal	treated effluent	39,600 gal
2-6,600 gal 8-3,168 gal	cyanide solutions	38,544 gal
2- 5,000 gal	sludge receiving	10,000 gal
	Sub Total	266,100 gal

#### Container Inventory:

4,400 drums	Sludges or Salts	242,000 gal
(55 gal)	(evaporation residue)	• "

Total Inventory at Closure (Max) .... 508,100 gals.

#### 11.30 CLOSURE SCHEDULE

The following schedule includes anticipated dates when wastes will no longer be accepted, treated or stored at ETICAM, and intervening closure milestone dates which will allow tracking of the progress of closure.

Closure Event: Anticipated Completion <u>Date:</u>

- 1) Waste no longer accepted, Year 2035 A.D. stored or treated.
- 2) Notify EPA/NDEP of the Closure Initiation Date. 180 days before date of initiation of closure
- 3) Final shipment of waste Closure initiation date accepted.
- 4) * Decontaminate loading/ Within 70 days of closure unloading areas and all initiation date floor and tank containment areas subject to spills and test rinse waters.
- 5) * Treat all remaining inventories of waste on site and decontamination wastes.

Within 85 days of closure initiation date

- 6) * Decontaminate all tanks, Within 110 days of piping, pumps, filters. Closure initiation date
- 7) * Treat all tank decontam- Within 120 days of ination rinse waters. Closure initiation date
- 8) * Ship all containers of Within 130 days of sludges and salts, drums closure initiation date of contaminated absorbent and personal protective equipment to permitted off site facilities.
- 9) * Decontaminate storage pads. Within 135 days
- 10) Submit certifications of Within 140 days of closure to EPA/NDEP by closure initiation date owner/operator and a registered prof. engineer.

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#### ETICAM, Fernley, Nevada

- 11.00 Closure Plan and Closure Cost Estimate (Class 2 Modification)
- 11) Invite EPA/NDEP to review Within 150 days of closure. Within 150 days of
- 12) Closure complete. Within 180 days of closure initiation date

* All items above marked with an asterisk are closure steps requiring inspection and/or supervision by an independent registered professional engineer.

#### 11.40 NOTIFICATION OF INTENT TO CLOSE

At least 180 days before the date closure is to begin, ETICAM will notify EPA and the Nevada DEP of the exact date it intends to initiate closure. In the event that amendments are required to the closure plan, said amendments will be submitted to EPA/NDEP along with the aforementioned notification of closure initiation date. If EPA/NDEP does not approve the plan or requires it to be modified, ETICAM will submit a new or modified plan to EPA/NDEP within 30 days of the date of such notification by EPA/NDEP.

# 11.50 REMOVAL AND/OR TREATMENT OF HAZARDOUS WASTE INVENTORIES

This section of the closure plan will describe how all hazardous waste at the facility will either be shipped off-site to a permitted facility or treated on-site.

All of the actions indicated in this section will be completed within 90 days of the closure initiation.

#### 11.51 SHIPMENT OFF-SITE

Following decontamination activities specified in this plan, ETICAM will ship all inventories of hazardous wastes and residues which cannot be treated on-site to permitted off-site facility(ies). This is expected to consist only of salt residues from the evaporator/crystallizer. Said removal of wastes will be completed within 90 days of initiation of closure as indicated in Section 11.50.

All transporters will possess hazardous waste transporter licenses in Nevada and all intermediate states, and will have obtained an EPA identification number. All off-site facilities utilized will be fully permitted to accept the waste shipped.

#### 11.52 TREATMENT OF REMAINING INVENTORIES

All remaining inventories (including the decontamination wash and rinse waters from the container storage areas and tank cleaning) will be treated on-site through the treatment systems. However, the closure cost estimate is based on off-site disposal of all liquids, sludges, and salts by a third party.

### 11.60 DECONTAMINATION OF HAZARDOUS WASTE STORAGE/TREATMENT AREAS

This section of the closure plan will describe how facility equipment and structures used to manage hazardous wastes will be decontaminated.

#### 11.61 TANKS, PUMPS AND PIPING

Once all non-treatable waste has been shipped offsite and all treatable waste has been processed, the empty treatment/storage tanks will be decontaminated one by one. All tank interior surfaces, will be thoroughly washed with a high pressure steam jenny cleaning unit containing a detergent solution. All wash water will be pumped to the 6600 gallon main treatment tank for appropriate treatment. Following the washing operation, each tank interior will be rinsed using the high pressure steam jenny unit without detergent. This first rinse will also be pumped to the above tanks for treatment. A second rinse will be performed and a composite sample of the rinse water will be collected for analysis to determine if decontamination is complete. Analytical testing for listed wastes will involve testing for the hazardous constituents for each listed waste previously stored in a particular area being decontaminated (said constituents being identified in the waste analysis plan; particularly for cyanide and Following tank decontamination, the filter metals. Page 11 - 7

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presses will be cleaned using the steam jenny unit by applying one detergent wash and two rinses. The second rinse will again be sampled and tested as previously described to insure decontamination is complete. During the tank decontamination procedures, all of the pumps and piping in the facility should have been adequately washed and rinsed. Any pumps and piping not already cleaned will be decontaminated by pumping through a clean water and detergent solution equal to three times the interior capacity of the line to be cleaned. This wash will be followed by two rinses of clean water. All wash and rinse waters from the filter presses, pumps, piping, clarifiers and auxiliary equipment decontamination at facility will be pumped to the 6600 gallon main treatment tank for treatment. Following tank pipe decontamination. all tank area secondary containment structures will be cleaned and decontaminated using one wash and one rinse from the high pressure steam jenny unit. It is estimated that 10,000 gallons of wash and rinse water will be generated from the tank, pumps, piping and auxiliary equipment decontamination.

During the last stages of decontamination operations, only the main 6600 gallon treatment tank, one of the clarifiers and intermediate pumps and piping will be operational. Any sludge generated will be container-

ized directly from the filters for shipment offsite. Final washing and rinsing of the 6600 gallon
tank and the filters will be completed with the
resultant waters evaporated and the salt residue
containerized for off site disposal. It is estimated
that 4 drums (220 gal) of sludge will be generated
from treatment of all decontamination wash and rinse
waters.

#### 11.62 TRUCK UNLOADING AREA DECONTAMINATION

Unloading area decontamination will be carried out in much the same way as tank and containment area decontamination. First, the entire area will be washed with the steam jenny containing a detergent solution. The wash water will be pumped to the 6600 gallon main treatment tank for treatment. Next, the area will be rinsed using the steam jenny unit with-out detergent. The first rinse will again be pumped to the 6600 gallon treatment tank for treatment.

A second rinse will be performed, pumped to the treatment reactor and a sample of the rinse water will be collected for analysis to determine if decontamination is complete. Analytical testing for listed wastes will involve testing for the hazardous constituents for each listed waste which has been unloaded in the area. (Said constituents being identified in the waste analysis plan.)

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11.63 Evaporator/Crystallizer & Drum Storage Pad

The pads will be washed down to remove any
residue soluble salts. The water will be pumped into
the treatment tank, treated and the effluent
evaporated. This will amount to 5,000 gallons.

The lined rain water pond soil will be analyzed for metals and also disposed of if contaminated. It is projected that there will be maximum of about 20 cubic yards of sand and soil blown in over time. All accumulated drums will be shipped off site to an appropriate site.

#### 11.64 Sludge Processing Area

The sludge processing area consists of 2 receiving hoppers (5,000 gallons each), one dissolution tanks (2,960 gallons), 2 continuous dryers, a pug mill mixer, and 3 smaller batch dryers. After the last material is processed, the hoppers, tanks, conveyors, and dryers, and pug mill will be washed to remove all sludge residues. The floor area and sumps will then be washed. All wash water from this operation will be sent off site, since this is the last step in the overall process.

The last item to be decontaminated in this area is the scrubbers and dust collectors. All residues will be removed and placed in drums. The equipment internals will then be washed to remove the last traces.

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A maximum of 5,000 gallons is estimated for this procedure. Three workers will perform this over a one week period.

#### 11.66 PLANT SCRUBBER SYSTEM

The last equipment to be taken out of service will be the plant scrubbing system. There are two small scrubbers and the main building scrubber. The scrubber water will be pumped into containers, and all ducting and scrubber internals will be washed to remove acids or caustic materials. finally, an internal inspection will be made and any residual solids will be removed by hand. An additional wash will be conducted if needed.

The scrubbers hold approximately 600 gallons, and another 1,000 gallons of wash water is anticipated for the final washout. This will generate a total of 1,600 gallons for of site treatment and or disposal.

#### 11.67 PROTECTIVE AND SPILL CLEAN-UP EQUIPMENT

Following the container storage area decontamination, all personnel protective equipment, and spill cleanup equipment which can not be decontaminated after the operations specified in Section 11.50 and 11.60 of this plan, will be containerized and shipped to a permitted off-site facility.

#### 11.70 FACILITY STATUS DURING CLOSURE

During the entire closure process, the facility will maintain compliance with US EPA and Nevada DEP hazardous waste regulatory standards.

#### 11.80 CERTIFICATION OF CLOSURE

#### 11.81 CERTIFICATION BY OWNER/OPERATOR

When closure is complete, the owner/operator will submit a signed certification to EPA that the facility has been closed in full accordance with the specifications in the approved closure plan.

#### 11.82 CERTIFICATION BY AN ENGINEER

#### 11.82.1 INSPECTIONS DURING CLOSURE

During the facility closure operations specified in Sections 11.50 and 11.60 of this plan, ETICAM will obtain the services of an independent registered engineer to oversee said operations. The engineer will inspect the hazardous waste inventory removal operation, inventory treatment and the facility decontamination operations to ensure they are carried out in accordance with the approved closure plan.

#### 11.82.2 CERTIFICATION BY THE ENGINEER

When closure has been completed, the registered engineer indicated in Section 11.82.1 of this plan will submit a written certification to EPA/NDEP

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that the facility has been closed in accordance with the specifications of this closure plan.

#### 11.90 COST ESTIMATE OF CLOSURE

This section of the closure plan will assess and estimate the anticipated cost for an independent third party to close the hazardous waste treatment storage aspects of ETICAM as delineated in Section 11.50 through 11.80.

#### 11.91 TREATMENT OF REMAINING INVENTORIES

Category (1): A maximum cost per gallon of treating all remaining hazardous waste inventories off site is \$1.50/gallon including transportation.

Category (2): The maximum cost for transportation and treatment of the more dilute decontamination wash and rinse waters is \$1.10/gallon.

#### Operation:

Total treatable inventory (from Section 11.22):

a) tank	<u> </u>	gallons:	
(cate	egory)		
	<ul><li>alkali solutions</li><li>cyanide solutions</li><li>process tanks</li></ul>	67,584 32,736 38,544 77,636 39,600	
(1)	138,864 gal X \$1.50/gal	\$	208,296
(2)	117,236 gal X \$1.10/gal	\$	128,960
Total:	256,100 gallons	\$	337,256
Section	11.91 subtotal	\$	337,256

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### 11.92 DECONTAMINATION ACTIVITIES

11.92.1	TRUCK UNLOADING AREA
•	Labor; 2 workers at 15 hours each times \$30/hour (includes salary taxes and fringe benefits)\$ 900
2)	Absorbent, 5 bags at \$10.00 50
•	Two empty open top drums at \$25. drum 50
•	Disposal of two drums con- taminated absorbent at \$62.50/ drum
	Steam jenny rental \$ 100/day for 2 days 200
•	Lab testing of second rinse waters 2 samples at \$150/sample
•	Treatment of wash and rinse waters from decontamination 400 gallons x \$1.10/gallon 440
Subs	ection 11.92.1 Subtotal \$ 2,065
11.92.2	TANKS, PUMPS, PIPING AND AUXILIARY EQUIPMENT DECONTAMINATION
	Labor, 4 workers at 70 hours each times \$ 30/hour \$ 8,400
2)	Steam jenny rental two units at \$ 100/day for 9 days 1.800
	Lab testing of second rinse waters: 7 samples at \$150/sample
	Treatment of wash and rinse water from decontamination 20,000 gallons x \$1.10/gallon 22.000

Revised Oct 5, 1990

#### ETICAM, Fernley, Nevada

11.00	Closure	Plan	and	Closure	Cost	Estimate
	(Class 2	Modi	fica	ation)		

5)	Disposal of wash and rinse
	waters and any residual treat-
	ment sludges and salt residue from final
	evaporation from last stages
	of tank decontamination (refer
	to 11.62)-880 gallons (16 drums) of
	combined sludge and wash water at \$62.50/
	drum for transportation and disposal

Subsection 11.92.2 Subtotal ..... \$ 34,437

#### 11.92.3 DISPOSAL OF RESIDUE DRUMS & POND DIRT

- 2) Transportation and disposal of
  4,400 drums at average wt of
  700 # = 1,540 tons and average
  cost of \$ 285.50/ton for
  trans and disposal ...... \$ 439,670
- 3) 20 tons of pond dirt 2 men @ 30/hr plus loader @ 50/hr for 8 hrs .... \$ 880
- 4) Disposal of 20 tons at 285.50/ton ..... \$ 5,710

Subsection 11.92.3 subtotal ..... \$ 494,000

#### 11.92.4 SLUDGE HANDLING AREA

- 1) Transportation and disposal of 40 tons at 285.50/ton .... \$ 11.420
- 2) Washwater treatment for 5,000 gallons at \$ 1.10/gal ..... \$ 5,500
- 3) 70 hours for 3 workers at \$ 30/hr . 6,300

Revised Oct 5, 1990

### ETICAM, Fernley, Nevada

11.00	Closure Plan and Closure Cost Estimate (Class 2 Modification)
	4) 5 samples at \$ 150 750
	Subsection 11.92.4 subtotal \$ 23,970
	11.92.5 PLANT SCRUBBER SYSTEM
	1) 1,600 gallons of scrubber water and wash water \$ 1,760
	2) 40 hours for three workers at \$ 30/hr
	Subsection 11.92.5 subtotal \$ 5,360
	11.92.6 SUPERVISION AND CERTIFICATION BY REGISTERED ENGINEER
-	<ol> <li>Periodic inspection during closure activities by an independent engineer, 20 hours x \$65/hour</li></ol>
	2) Preparation of certification of closure, 2 hours at \$65/hour 130
	Subsection 11.92.6 Subtotal \$ 1,430
	11.93 CONTINGENCIES
	The sum of costs in Sections 11.91 through 11.92.6 \$ 898,518
	A 10% provision is made for contingencies that may arise during closure operations. Although all attempts have been made to include all possible closure costs, this 10% provision has been added to account for any anticipated contingencies
	\$ 89,852
	•
	11.94 CURRENT ESTIMATED CLOSURE-COST = OCT 1989
	The total closure cost is therefore the sum of costs in Section 11.91 through 11.93 which is
	s 988,370

Revised Oct 5, 1990

#### 11.95 ADJUSTMENTS TO CLOSURE COST

Each year (i.e., October) ETICAM will adjust the closure cost estimate by recalculating the cost of closure in current dollars, or by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its "Survey of Current Business", as specified in paragraphs (b)(1) and (2) of 40 CFR 264.142 as follows:.

- "(1) The first adjustment is made by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate."
- "(2) Subsequent adjustments are made by multiplying the latest adjusted closure cost estimate by the latest inflation factor."

#### 11.100 AMENDMENT OF PLAN

This closure plan and closure cost estimate will be amended from time to time during the active life of the facility whenever changes in operating conditions, permit modifications, anticipated year of closure, or any of the information in this plan substantially changes. This amendment must be submitted as part of any permit modification submission, or within 60 days of any changes requiring the amendment but not requiring a permit modification.

#### CALCULATIONS

Disposal of salt and sludge residue:

1) Cost for loading bulk trailers or roll off hoppers:

19 tons per trailer

700 # net per drum = 54 drums

 $4,400 \text{ drums } \times 700 \text{ pounds} = 3,080,000 #$ 

= 1,540 tons

Two men 8 hours with lift truck to load 19 tons Labor rate = \$ 30/hr, lift truck rental = \$ 500 per week, or \$ 100 per day of loading.

Cost per ton = \$580 / 19 tons = \$30.53/ton

2) Transportation:

Hauling cost = \$ 1,575 per trip

/ 19 tons = \$83 / ton

3) Stabilization/Disposal

Note: Cost = 100/ton if salt is not listed waste

Expected that one half will require stabilization at \$305 per ton, and other half will meet treatment standards at disposal cost of \$ 100 per ton.

Average cost for stabilization/disposal = \$202.50/ton

Total Cost for transferring, transportation and disposal

= \$ 316.03 / ton

#### TRUST AGREEMENT

Trust Agreement, the "Agreement", entered into as of 9/18/89 by and between ETICAM a Nevada corporation, the "Grantor", and First Interstate Bank, Nevada, incorporated under the laws of the United States (a National Bank) the "Trustee".

Whereas, the Nevada Department of Conservation and Natural Resources, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure and/or postclosure care of the facility,

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facility identified herein,

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

- (a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.
- (b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.
- Section 2. Identification of Facilities and Cost Estimates. This agreement pertains to the facility and cost estimate identified on attached Schedule A.
- Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund", for the benefit of Nevada Department of Conservation and Natural Resources. The Grantor and Trustee intend that no third party have access to the Fund except as herein provided. The fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided.



(Trust for August 1, 1989 Closure Cost Estimate)
Page 1

The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by Nevada Department of Conservation and Natural Resources.

Section 4. Payment for Closure and Post-Closure Care. The Trustee shall make payments from the Fund as the Director of the Nevada Department of Conservation and Natural Resources shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facility covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the Director of the Nevada Department of Conservation and Natural Resources shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the Director of the Nevada Department of Conservation and Natural Resources specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

The Trustee shall Trustee Management. Section 6. invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with the aims; except that:

- (i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2. (a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State Government;
- (ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(Trust for August 1, 1989 Closure Cost Estimate)
Page 2

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for payment of interest thereon.

Section 7. Commingling & Investment. The Trustee is expressly authorized in its discretion:

- (a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and
- (b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a.-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.
- Section 8. Express Powers of Trustee. Without in any way limiting the power and discretions conferred upon the Trustee by the other provisions of this Agreement or by Law, the Trustee is expressly authorized and empowered:
- (a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other dispositions;
- (b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;
- own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the

Trustee shall at all times show that all such securities are part of the fund;

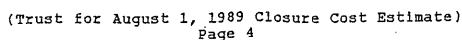
- (d) To deposit any cash in the Fund in interest-bearing accounts maintained or saving certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State Government; and
- (e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate Director of the Nevada Department of Conservation and Natural Resources a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the Director of the Nevada Department of Conservation and Natural Resources shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may by counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.



Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions, The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the Director of the Nevada Department of Conservation and Natural Resources, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instruction to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and All orders, requests; and instructions by instructions. the Director of the Nevada Department of Conservation and Natural Resources to the Trustee shall be in writing, signed by the Director of the Nevada Department of Conservation and Natural Resources or his/her designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or Nevada Department of Conservation and Natural Resources hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or Nevada Department of Conservation and Natural Resources, except as provided for



Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the appropriate Director of the Nevada Department of Conservation and Natural Resources by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the Director of the Nevada Department of Conservation and Natural Resources, or by the Trustee and the Director of the Nevada Department of Conservation and Natural Resources if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Director of the Nevada Department of Conservation and Natural Resources, or by the Trustee and the Director of the Nevada Department of Conservation and Natural Resources, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the Director of the Nevada Department of Conservation and Natural Resources, issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of Nevada.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of the Agreement shall not affect the interpertation of the legal efficacy of this Agreement.

(Trust for August 1, 1989 Closure Cost Estimate)
Page 6

In Witness Whereof the parties have caused this agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as part of the date first above written: The parties below certify that the wording of this agreement is identical to the wording specified in 40 CFR 264.151(a)(1) as such regulations were constituted on the date first above written.

Signature of ETICAM, Officer (Grantor)

<u>Treside</u> (Title)

Attest:

Byin B. Brahl

First inversions between Ma. RENO DISTAICY TRUCT CHALLEGOZ

P. O. BOX 00109

RENO, NEVADA 39520

Signature o

Vice President and

Institutional Trust Manager

SUSAN D. REYNOLDS Trust & Financial Services Officer

(Title)

Attest:

State of NevadaALIFORNITT
County of SACRAMENTO
on this Brk day of Intoher 1989, before me personnally came Examin A. Simnon to me known, who, being by me duly sworn, did depose and say that he resides at 1316 Dependent Cal. Section to 45864 that he is made which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that is was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by
Signature of Notary Public
My Commission Expires On:

## EXHIBIT A

Persons at ETICAM designated to issue orders, requests and instructions to the Trustee in accordance with Section 14. Instructions to the Trustee, of the Trust.

Agreement dated 9/18/87.

Denjamu ()

Title

10/23/89

Date

#### SCHEDULE A

OWNER/OPERATOR:

ETICAM

LOCATION:

FERNLEY, NEVADA

EPA ID Number:

NVD 980 895 338

Current Closure Cost Estimate: \$ 948,319

Post Closure Cost Estimate: Not Applicable

Estimate Prepared By: Byrn 3 Brall

Date: 11/19/91

#### SCHEDULE B

This is to certify that as of the date indicated below, a total of \$ 375,247.42 has been deposited in the Trust Fund estanblished at the First Interstate Bank of Nevada, N.A. referenced by the documents attached hereto.

Signature

January 14, 1991

Date

Owner/Operator:

ETICAM

Fernley, Nevada

EPA ID Number:

NVD 980 895 338

## SCHEDULE A

OWNER/OPERATOR:

ETICAM

LOCATION:

FERNLEY, NEVADA

EPA ID Number:

NVD 980 895 338

Current Closure Cost Estimate: \$ 624,486.50

. Post Closure Cost Estimate: Not Applicable

## SCHEDULE B

This is to certify that as of the date indicated below, a total of \$ 124.897.30 has been deposited in the Trust Fund estanblished at the First Interstate Bank of Nevada, N.A. referenced by the documents attached hereto.

Signature

5-5-

Owner/Operator:

ETICAM

Fernley, Nevada

EPA ID Number:

NVD 980 895 338

## 40 CFR Ch. I (7-1-89 Edition)

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(Approved by the Office of Management and Budget under control number 2050-0036)

[47 FR 15064, Apr. 7, 1982, as amended at 50 FR 4514, Jan. 31, 1985; 51 FR 16456, May 2,

## § 265.143 Financial assurance for closure.

By the effective date of these regulations, an owner or operator of each facility must establish financial assurance for closure of the facility. He must choose from the options as specified in paragraphs (a) through (e) of this section.

- (a) Closure trust fund. (1) An owner or operator may satisfy the requirements of this section by establishing a closure trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the Regional Administrator. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.
- (2) The wording of the trust agreement must be identical to the wording specified in § 264.151(a)(1), and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, § 264.151(a)(2)). Schedule A of the trust agreement must be updated within 60 days after a change in the amount of the current closure cost estimate covered by the agreement.
- (3) Payments into the trust fund must be made annually by the owner or operator over the 20 years beginning with the effective date of these regulations or over the remaining operating life of the facility as estimated in the closure plan, whichever period is shorter; this period is hereafter referred to as the "pay-in period." The payments into the closure trust fund must be made as follows:
- (i) The first payment must be made by the effective date of these regulations, except as provided in paragraph (a)(5) of this section. The first payment must be at least equal to the current closure cost estimate, except as provided in § 265.143(f), divided by the number of years in the pay-in period.

## **Environmental Protection Agency**

(ii) Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by this formula:

where CE is the current closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

- (4) The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the current closure cost estimate at the time the fund is established. However, he must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in paragraph (a)(3) of this section.
- (5) If the owner or operator establishes a closure trust fund after having used one or more alternate mechanisms specified in this section, his first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made as specified in paragraph (a)(3) of this section.
- (6) After the pay-in period is completed, whenever the current closure cost estimate changes, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the fund is less than the amount of the new estimate, the owner or operator, within 60 days after the change in the cost estimate, must either deposit an amount into the fund so that its value after this deposit at least equals the amount of the current closure cost estimate, or obtain other financial assurance as specified in this section to cover the difference.
- (7) If the value of the trust fund is greater than the total amount of the current closure cost estimate, the owner or operator may submit a written request to the Regional Administrator for release of the amount in excess of the current closure cost estimate.

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(d) The owner or operator must keep the following at the facility during the operating life of the facility: The latest closure cost estimate prepared in accordance with § 264.142 (a) and (c) and, when this estimate has been adjusted in accordance with § 264.142(b), the latest adjusted closure cost estimate.

(Approved by the Office of Management and Budget under control number 2050-0036)

[47 FR 15047, Apr. 7, 1982, as amended at 50 FR 4514, Jan. 31, 1985; 51 FR 16447, May 2, 1986; 52 FR 46964, Dec. 10, 1987]

#### § 264.143 Financial assurance for closure.

An owner or operator of each facility must establish financial assurance for closure of the facility. He must choose from the options as specified in paragraphs (a) through (f) of this sec-

(a) Closure trust fund. (1) An owner or operator may satisfy the requirements of this section by establishing a closure trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the Regional Administrator. An-owner or operator of a new facility must submit the originally signed duplicate of the trust agreement to the Regional Administrator at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

(2) The wording of the trust agreement must be identical to the wording specified in § 264.151(a)(1), and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, § 264.151(a)(2)). Schedule A of the trust agreement must be updated within 60 days after a change in the amount of the current closure cost estimate covered by the agreement.

(3) Payments into the trust fund must be made annually by the owner or operator over the term of the initial RCRA permit or over the remaining operating life of the facility as estimated in the closure plan, whichever

period is shorter, this period is hereafter referred to as the "pay-in period." The payments into the closure trust fund must be made as follows:

(i) For a new facility, the first payment must be made before the initial receipt of hazardous waste for treatment, storage, or disposal. A receipt from the trustee for this payment must be submitted by the owner or operator to the Regional Administrator before this initial receipt of hazardous waste. The first payment must be at least equal to the current closure cost estimate, except as provided in § 264.143(g), divided by the number of years in the pay-in period. Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by this formula:

where CE is the current closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(ii) If an owner or operator establishes a trust fund as specified in § 265.143(a) of this chapter, and the value of that trust fund is less than the current closure cost estimate when a permit is awarded for the facility, the amount of the current closure cost estimate still to be paid into the trust fund must be paid in over the pay-in period as defined in paragraph (a)(3) of this section. Payments must continue to be made no later than 30 days after each anniversary date of the first payment made pursuant to Part 265 of this chapter. The amount of each payment must be determined by this formula:

where CE is the current closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

#### ATTACHMENT 7

PROCEDURES FOR HANDLING IGNITABLE.
REACTIVE. OR INCOMPATIBLE WASTE
IN CONTAINERS

CLASS II PERMIT MODIFICATION REVISIONS DATED JULY 11. 1990

#### ETICAM Fernley, Nevada

#### 2.10 GENERAL

ETICAM operates a metals reclamation facility, and a hazardous waste storage and treatment facility in Fernley. Nevada. ETICAM is committed to resource conservation. metals recovery, and proper handling and processing of hazardous waste. This facility performs a unique service in its resource recovery operations. Certain of its operations extract metals from materials and solutions. some of which would otherwise be of no economic value. These product materials are effective substitutes for commercial products.

#### 2.20 WASTE LISTING

As preciously discussed. ETICAM accepts and processes certain materials typically generated by the metal finishing industry. The facility will accept various precious metal and non-precious metal containing solutions including cyanide and acid/alkali solutions (generally plating and stripping baths), and metal bearing solutions and sludges. The metal bearing solutions and sludges, and the cyanide acid/alkali solutions will be stored and processed and valuable metals, if present, reclaimed.

#### DEFINITION OF CONTAINER 40CFR 260.10:

"Container" means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

The Following is a breakdown of the above mentioned materials that ETICAM will accept:

<u>MA</u>	TERIAL	Typical EPA NO.	Container <u>Type</u>
1)	Metal Solutions or Sludges		all DOT approved or acceptable
2)	Acids/Alkalis (includes precious metal solutions)	D002.D006. D007,D008. D011	all DOT approved or acceptable
3)	Cyanides (Includes precious metal solutions)	F007.F008 F009.F011. F012.D003. D006.D007. D008.D011.	all DOT approved or acceptable

#### 2.30 CHEMICAL/PHYSICAL CHARACTERISTICS OF MATERIALS

Table 2.1 provides a detailed description of the chemical and physical properties of each of the compounds listed in subsection 2.20. Although these properties are provided for the virgin material, they provide useful indications of the properties of the wastes.

The material indicated as metal in Section 2.20 are typically generated by industries throughout the area.

ETICAM attempts to reclaim variable metals from these materials whenever possible. These solutions and sludges often contain significant amounts of copper. nickel. silver, gold, etc. In performing this reclaiming operation, ETICAM is meeting the intent of RCRA by taking a material which would otherwise have to be landfilled, and converting it to a reusable material. At ETICAM, these, otherwise potentially toxic solutions and sludges, are processed to extract any recoverable metals to produce a product material which is a suitable substitute for a commercial products and/or properly treated: thereby decreasing the amount of material being sent to a landfill and reducing the potential for future environmental pollution.

## TABLE 2.1: Aqueous Wastes - Hazardous Properties

## Cyanide Solutions and Sludges

Hazardous Properties:

Contains cyanides Contains heavy metals Generally corrosive

pH : 12

Specific Characteristics of typical material by EPA waste type:

EPA Waste <u>Type</u>	Specific Gravity	Generic Type	<u> Hazardous Properties</u>
F007	1 - 1.2	Copper/Zinc Baths	CuCn - 28 to 55 gms/Lt Zn(CN) ₂ - 9.5 to 32 gms/L
			NaCN - 60 to 95 gms/Lt pH 10.3 - 10.7
	1 - 1.2	Copper Baths	CuCn - 11 10 126 gms/Lt NaCN - 36 to 142 gms/Lt pH > 12
	1 - 1.2	Cadmium Baths	Cd(CN) ₂ 40 gms/Lt NaCN 80 gms/Lt NaOH 20 gms/Lt
	1 - 1.2	Gold Baths	KCN 11 to 16 gms/Lt
	1 - 1.2	Silver Baths	AgCN up to 111 gms/Lt KCN up to 120 gms/Lt
	1 - 1.2	Tin/Zinc Baths	Zn(CN) ₂ up to 28 gms/Lt
		satns	KCN up to 20 gms/Lt KOH up to 63 gms/Lt
F008	1 - 1.2	Tank Sludges	Hazardous properties CuCn Zn(CN) ₂
	·		Cd(CN) ₂ Ag(CN) NaCN KCN NaOH KOH

EPA Waste <u>Type</u>	Specific Gravity	Generic Type Hazardous Properties
F009	1 - 1.2	Cyanide de- NaCN up to 100 g/L plating and NaOH up to 30g/L cleaning Heavy metal to solutions stoichiometric saturation
F011	1 - 1.2	Spent Quenching Solutions See F008
F012	1 - 1.2	Quenching Sludges See F009
D003	1 - 2.0	Cyanide bearing wastes not listed above which, when exposed to pH conditions between 2 and 12.5, can generate toxic gas vapors or fumes in a quantity sufficient to present danger to human health or the environment.
D006		Same as D003. but also containing Cadmium in excess of 1 ppm.
D007		Same as D003. but also containing chrome excess of 5 ppm.
D008		Same as D002, but also containing lead in excess of 5 ppm.
D011		Same as D003, but also containing silver in excess of 5 ppm.

## Acid and Alkaline Solutions

Hazardous properties:

Contains heavy metals Generally corrosive pH  $\geq$  12

Specific Characteristics of Typical Materials

	Specific Gravity	Generic Type	Hazardous Properties
D002	1 - 1.2	-	Aqueous wastes which have pH less than or equal to 2 or greater than or equal to 12.5

	Specific Gravity	Generic Type	Hazardous Properties
D007 1	1 - 1.2		Same as D002, but with chromium in excess of 5 ppm.
D008 1	1 - 1.2		Same as D002, but with lead in excess of 5 ppm
D006 1	1 - 1.2		Same as D002, but with Cadmium in excess of 1 ppm
D011 1	1 - 1.2	Silver Nitrates	Same as D002, but with silver in excess of 5 ppm

#### Metal Solutions and Sludges

Hazardous Properties:

Contains heavy metals Generally not corrosive, but may be.

# Specific Characteristics of Typical Materials by EPA Waste Type

	Specific Grayity	Generic Type	Hazardous Properties
F006	1.0 - 2.0	Waste Water Sludges	Up to 30% heavy metals by weight
D00€	1.0 - 2.0	Cadmium Sludges and solids	Cadmium in excess of 1 ppm
D007 1	0 - 2.0 C	hromium Sludges and solids	Chromium in excess of 5 ppm
D008	1.0 - 2.0	Lead Sludges or solids	Lead in excess of 5 ppm
D011	1.0 - 2.0	Silver Sludges and solids	Silver in excess of 5 ppm

#### 2.31 METHODS OF WASTE GENERATION

The methods of generation of the wastes listed in Section 2.20 and in Table 2.1 are varied.

ETICAM are generally generated from various metal finishing operations or as industrial wastewater treatment sludges from electroplating, electroless plating and other industrial processes where heavy metals must be removed from aqueous streams prior to discharge to a municipal sewer system or to a waterway. Metal solutions and sludges can also result from the clean out of metal plating and stripping baths and rinse tanks or from any other process where such materials are manufactured, used or otherwise generated. Such metal solutions and sludges would include but not be limited to:

- Silver, gold and other precious metals containing solutions and sludge from electroplating, metal stripping, ion exchange, etc. processes.
- Metal solutions and sludges containing nickel. copper, chromium, lead, cadmium, zinc, gold, silver, etc. from various plating, metal cleaning, grinding, polishing and related operations.

The Cyanide and acid/alkali solutions are generally from various metal finishing operations. They usually are plating and stripping bath solutions and rinsewaters.

These solutions can contain precious and valuable metal which can be removed from solution.

#### 2.40 STORAGE/TREATMENT PROCESS

This section will describe how materials are unloaded, stored and treated at ETICAM.

Tank trucks transporting liquid hazardous wastes enter the unloading bays. The driveway leading to the building is bermed on each side with a six inch concrete curb. The entrance drive is sloped towards a rainwater drain which enters a double wall collection tank.

Quarantined tank trucks will be set on the entrance driveway, or the unloading bay. Quarantined containers will be set in the unloading bay, on the entrance drive, or on the drum storage area storage area, all which are controlled and contained areas. Note: The portable tanks and tank trucks are DOT approved containers for the transportation of hazardous wastes and have a low potential for leaks and spills, especially when not in transport or when used for fixed storage.

The unloading bay (see facility plan) has bermed sides and sloped floors so that any spillage drains through grates and flows directly into storage tanks S-11.0 for Cyanide or S-11.1 for Acid/Alkali. Tanks and containers will remain closed until they enter the unloading bay for sampling.

Except as noted in section 2.41, containers will remain on the vehicles until empty, thus minimizing the possibility of a rupture or leak resulting from handling.

Both tank trucks and portable tanks and containers on trucks are immediately rinsed and emptied upon acceptance of material so that no more than 0.3 percent by weight of the total capacity of the container remains in the container. These containers are therefore considered empty according to 40 CFR 261.7 and are not subject to regulation under Parts 261 through 265 or Part 270 or 124 of those regulations.

Metal bearing sludges are shipped in various types of trucks and/or, containers including but not limited to dump trucks, roll-off containers, boxes, metal drums, plastic drums, metal boxes, wooden boxes, plastic boxes, cloth or plastic bags. These containers are designed for safe handling and are unloaded from the trailer truck directly into the plant for storage and processing.

Since these materials can not be pumped into storage tanks and are solids rather than free flowing liquids, they will be introduced into the middle of the treatment process; loaded into a reactor for further treatment and filtration, or directly into the dryers for final blending and processing. Bulk solids will be directly dumped into receiving/storage bins, whereas containerized solids will be unloaded from the truck and fed into the appropriate step of the process.

#### 2.41 METAL SOLUTIONS AND SLUDGES

Metal bearing solutions and sludges are accepted at ETICAM in tank trucks, or containers transported by truck. These materials originate from various operations such as jewelry manufacturing, circuit board manufacturing, metal finishing and others which generate metal containing solutions and sludges.

Storage of liquid waste at ETICAM will be in tanks as shown on Site Plan, Sheet D in Section 8.0 of the Class II Permit Modification Request Revised July 11, 1990.

Incoming bulk shipments and containers will be off loaded into storage tanks S-1 through S-28, or directly to the reactors for treatment.

Portable tanks may be removed from the truck and unloaded on the East loading dock or unloading bay when special conditions prohibit mixing in the storage tanks; for instance, small volumes of precious metal bearing wastewater, where treatment requires segregation, or to comply with restrctions for blending wastes; see page 11-11 b & c of section 8.0 of the Class II Permit Modification Request Revisions dated July 11, 1990.

Treatment of metal solutions and sludges at ETICAM will follow the schematic shown in the process flow diagram in Section 8.0 of the Class II Permit Modification Request Revisions dated July 11, 1990. Certain of the

solutions and sludges accepted at ETICAM have sufficient precious and/or valuable metal content to make reclamation economically viable. Once on-site, laboratory testing will confirm whether or not metals can be reclaimed from the material.

If metals can be reclaimed, the material will be processed by either direct filtration or chemical and electrolytic processing. If the solution(s) or sludge does not contain sufficient amounts of precious or valuable metal to make recovery feasible, it will be processed through the treatment system for removal of heavy metal residues. The separated sludge will be shipped off-site to a permitted facility (if hazardous waste by definition or testing) or to a smelter or other manufacturing process as a product.

The separated water phase will be discharged to the public sewer only if all sewer ordinance parameters are met, or evaporated in the evaporator/crystallizer system.

#### 2.42 CYANIDE BEARING WASTES

Cyanide bearing wastes will be stored in holding tanks S-1 thru S-2 and S-12 thru S-15. This waste will then be treated by conventional alkaline chlorination as shown in the process flow diagram in Section 8.0 of the Class II Permit Modification Request Revisions dated July 11, 1990. Cyanide solutions are processed by chemical and

electrolytic methods. The resultant barren solutions will then be processed through the facility's treatment system. In this process the acids and alkalies will be neutralized and any heavy metal residues removed.

The clarified effluent will be discharged to the public sewer system only if all sewer ordinance parameters are met, or evaporated in the evaporator/crystallizer system.

#### 2.43 ACID/ALKALI BEARING WASTES

Acid/alkali bearing wastes will be stored in holding tanks S-3 thru S-6 for alkalies. S-7 thru S-10 for acids. and S-16 thru S-28 for acid wastes. These wastes will then be treated by neutralization and heavy metal precipitation as shown in the process flow diagram in Section 8.0 of the Class II Permit Modification Request Revisions dated July 11, 1990.

Acid/alkali solutions containing sufficient quantities of metals will be first stored in tanks S-16 thru S-28 for acids and tanks S-12 and S-13 for alkali and then processed by chemical and electrolytic methods. The resultant solutions will then be processed through the facility's treatment system.

In this process the acids and alkalies will be neutralized and any heavy metal residues removed as a

metal precipitate. The clarified effluent will be discharged to the public sewer system only if all sewer ordinance parameters are met, or evaporated in the evaporator/crystallizer system.

#### 2.50 PROCESS DESIGN CAPACITIES

Because most of the operations carried out at the facility are batch treatment operations, it is difficult to accurately predict the design capacities of the operations. Processing time will vary depending on the concentrations of contaminants in the wastewaters being treated, and other factors. The following table gives annual maximum quantities of waste which will be processed at ETICAM:

Metal bearing solutions	31,000	tons/yr
Cyanide bearing solutions	31.000	tons/yr
Acid/Alkali solution	31,000	tons/yr
Metal hydroxide sludges	31.000	tons/yr

#### 2.30 DESCRIPTION OF TREATMENT PROCESS

The treatment system is capable of properly treating all incoming waste acid/alkali, cyanide, spillage and metal bearing solutions.

in addition, the system treats all residual solutions generated from metals recovery operations, and any contaminated supernatant and filtrate from metal hydroxide

the Class II Permit Mdification Request Revisions dated
July 11. 1990 describes the treatment functions and
includes diagrams which show all tanks and auxiliary
equipment to be installed. Section 8 of the Class II
Permit Modification request Revisions dated July 11, 1990.
specifically Tables 8.2 and 8.3, provide lists, capacities
and descriptions of all existing and proposed tanks.

The following sections describe typical treatment methods used for most waste streams. ETICAM utilizes many proprietary treatment techniques which will change daily as needed to properly handle the variable wastes received.

New treatment techniques will be reviewed by a plant chemist and/or engineer to evaluate the efficiency and safety of the process. A step by step treatment protocol for each type of treatment is given to the plant operators.

#### 2.81 ACID/ALKALI SOLUTIONS

Acid/alkali solutions are pumped to batch treatment Tanks T-1 thru T-5 for processing. Whenever possible, a waste acid is partially used to neutralize a waste alkali and vice versa. Between 2500 to 6000 gallons are treated per batch. Depending on the resultant pH of the mixture, lime, caustic or acid are added until a pH of approximately 9 is attained. This pH provides for optimal heavy metal precipitation.

The contents of the treatment tank are usually mixed for 30 minutes after which the pH is again adjusted if required. pH monitoring is by means of an in-tank pH probe or portable back up meter. Following this pH readjustment, the contents of the tank is pumped to one of two clarification tanks (C-1 thru C-4) for sludge separation.

Several additional procedures maybe used. These include but are not limited to:

- 1) Sulfide precipitation
- 2) Sodium Borohydride reduction
- 3) DTC precipitation
- 4) Oxidation with peroxide bleach or ozone.
- 5) Thermal decomposition with or without a catalyst.

The following descriptions are typical treatment steps that will vary from day to day based on the individual waste stream being processed.

In the case of sodium sulfide precipitation, Na2S is added dry or in slurry form (20% solution) at a pH of 7 or greater, until all residual metals are precipitated.

In the case of NaBH4, or DTC the solution is adjusted to a pH of 6.0. NaHSO3 is then added in a ration of 1:2 with the total heavy metal present.

The solution is then agreeated for 15 minutes and the pH readjusted to 6.5. A 1.2% solution of NaBH4 1s then added intil a reduction potential of -4000 MV is achieved for a period of 15 minutes under agitation.

Redox monitoring is by means of an in-tank Redox probe or portable backup meters. Following pH readjustment, the contents of the tank are pumped to one of four clarification tanks (C-1 thru C-4) for sludge separation.

#### 2.62 METAL BEARING SOLUTIONS

The following descriptions are typical treatment steps. The actual treatment used will have variations and differences that depend on the unique makeup of each individual waste stream being processed.

## 2.62.1 UNRECOVERED METAL BEARING SOLUTIONS

Non-cyanide solutions containing concentrations of dissolved heavy metals which have not been recovered will be processed by the procedure described in Section 2.31 for acid/alkali solutions. An exception is for solutions containing complexing agents or hexavalent chrome.

#### 2.62.2 SOLUTIONS CONTAINING HEXAVALENT CHROME

Solutions containing Lexavalent chrome must be pretreated prior to its removal as chromium hydroxide. Because of this, hexavalent chrome bearing solutions are stored in tanks S-9, S-10, S-27, or S-28, and pretreated separately from normal acid/alkali or metal bearing wastes.

When a sufficient quantity of hexavalent chrome bearing waste is accumulated, it is pumped to treatment Tanks T-1 thru T-5. If the pH of the mixture is high, it is reduced to 2.5 by the addition of acid. pH monitoring is made using an in-tank pH probe or portable back-up meter.

After a pH of 2.5 is attained, sodium metabisulfite is added. NaHSOs is a reducing agent which converts hexavalent chrome to its trivalent state. During the NaHSOs addition, acid is added as required to maintain the pH at 2.5 or below. At this pH, conversion of hexavalent to trivalent chrome is most rapid.

Reaction progress is monitored using a hexavalent chrome indicator reagent (diphenyl carbacid). When all hexavalent chrome has been reduced, treatment will proceed as described in Section 2.61 for acid/alkali solutions.

chrome, zinc, dilver, gold, nickel and copper recovery along with all ancillary feed tanks, pumps, ion exchange, etc. These process units are considered manufacturing facilities for producing pure metals.

During electrolytic recovery operations, a current is passed through the solution and the metal is electro deposited onto special cathodes. Once the metal is removed, the barren solution is transferred to the appropriate storage tank for subsequent treatment as previously described.

The recovery capacity of these systems is as follows:

Metal	Form .	Metal Capacity Per Shift		Capacity Shift
Cadmium	Metallic Sheet	1 Ton	32	$m^3$
Chrome	Metallic Sheet	1 Ton	32	m ³
Coppe:	Metallic Sheet	1 Ton	3 <b>2</b>	$m^3$
Gold	Saturated Resin	n 200 T.O.	. <u></u>	.n ³
Silver	Metallic Elake	223 T.O.	7	ın³
Yickel	Nickel Sulfate (100 gms./lt.)	1 Ton	32	m ³
Zinc	Metallic Sheet	1 Ton	32	īn ³

The maximum flow rate from the final purification plant is limited to about 100 GPM. This plant will not operate continuously. The flow from the purification plant will be discharged to the continuous flow neutralization plant.

#### 2.70 PIPING AND PROCESS CHANGES

Piping, process changes and modifications may be required as technology changes to enhance treatment and recovery. These modifications will be approved under a Class I Modification procedure, with prior approval of the State of Nevada, NDEP.

#### 2.71 INCOMING SHIPMENTS

All metal bearing solutions and sludges, cyanides. acid/alkali solutions, and precious metal bearing solutions accepted for storage/treatment by ETICAM will be accompanied by fully completed uniform manifest form and Land Dispoisal Restriction notifications and certifications as required by regulation. The manifest form used will be acceptable to the State of Nevada. ETICAM will not accept the aforementioned materials unless a manifest accompanies the chipment, and ETICAM has been designated on the manifest by the generator to receive the material. When the state of origin does not classify the material as a hazardous waste, a bill of lading will be used in place of the manifest.

Upon acceptance of a shipment, ETICAM will sign and date the manifest to indicate receipt of said shipment. Any significant manifest discrepancies will be noted on the manifest form (refer to subsection 3.10 of the Waste Analysis Plan).

<u>Manifast Copy</u>		Distribution
Destination State Copy 1		ETICAM mails to Environmental Office in State of Nevada
Generator State Copy 2		ETICAM mails to Environmental Office in State where waste was generated
Generator Completed Copy 3	-	ETICAM mails to Generator
Facility Copy Copy 4	-	ETICAM retains for at least 3 years
Transporter Copy Copy 5	-	Transporter keeps after signing by ETICAM
Destination State Copy 3	-	Already detached when waste received at ETICAM
Generator State Copy 7	-	Almeady detached when waste received at ETICAM
Generator Copy Copy 8	-	Already detached when waste received at ETICAM

## 2.72 OUTGOING SHIPMENTS

Any and all wastes generated at ETICAM during precious/valuable metal reclamation or the described treatment/storage operations which must be shipped off-site for disposal will be evaluated and/or tested prior to shipment to determine whether or not they are bazardous. If the material is determined to be a hazardous waste by definition or testing, it will be shipped by manifest to fully authorized and permitted off-site treatment, storage or disposal facilities.

## 2.02.0 SOLUTIONS CONTAINING MINTURES AND/OR COMPLEXING AGENTS

Complexing agents such as ammonia can tie up metals in solution and render normal hydroxide precipitation ineffective. Also in this category are spillage wastes from electroplating shops which contain mixtures of various metals.

These wastes are stored and treated separately in order to achieve maximum heavy metals removal.

Procedures for treating these solutions is described in this Section. Generally, laboratory treatability tests are conducted on these types of wastes to determine exact treatment procedures.

### A. Solutions Containing Mitrite

Solutions containing nitrites (generally neutral or alkaline) are pumped to a treatment tank and agitated. Solid amidosulfuric acid is then added and will be dissolved in the agitated waste water. The amount of amidosulfuric acid is determined in the laboratory during trial tests.

Following this procedure, acid is added slowly until the pH value is adjusted to about 4 - 5. Control is attained by means of a pH measuring probe. This procedure insures that no nitric oxides are formed. The solution is then agitated for about 15 minutes, and the pH raised to 9

with the addition of lime or modium hydroxide solution.

The resultant mixture is again agitated for about 15 minutes and the pH readjusted to 3, if necessary. The contents of Tanks T-1 thru T-5 is then pumped to the clarification Tanks C-1 thru C-4 for sludge removal.

B. Solutions Containing The Complexing Agents
Nitrilo Triacetic Acid. Ethylene Diamino
Tetraacetic Acid. Hydroxilated Hydrocarbon
Compounds and Ammoniacal Compounds

The solution is pumped to treatment Tanks T-1 thru T-5 and the pH adjusted to a value of 3 - 4. NaHSO₃ solution is then added to mixture while it is agitated. The amount of NaHSO₃ is determined by laboratory bench tests. Sodium Sulfide and lime are then added until the mixture pH raises to 12. The solution is then agitated for one hour.

The sludge generated from this treatment is produced separately through one of the clarifiers (C-1 thru C-1).

C. <u>Solutions Containing The Complexing Agents</u>
<u>Including Organic Amino Compounds</u>

The solution is pumped to treatment Tanks T-1 thru T-6 and the pH adjusted to between 7 - 12. Sodium sulfide is then added while the mixture is agitated. The exact amount of sodium sulfide is determined by laboratory trial tests.

Following a 20 minute agitation, lime or acid to added until a pH of 0 is attained. The solution to again agitated for 00 minutes.

Sludge generated from this treatment step is processed separately through one of the clarifies (C-1 thru C-4).

#### 2.63 SOLUTIONS CONTAINING CYANIDES

Cyanide bearing solutions are pumped to batch treatment T-5 thru T-7 for processing. With the mixer on, sodium hydroxide solution is added (if required) until a pH of 11 or above is achieved. pH control is by means of a pH monitoring probe.

Sodium hypochlorite solution (normally 15%), hydrogen peroxide, ozone, or sulfur dioxide is then added to exidize the cyanide. The pH is maintained at 11 by sodium hydroxide solution addition. Reaction progress is monitored by means of an oxidation/reduction potential monitoring probe, and the use of potassium iodide starch test paper (for excess chlorine indication).

When reagent additions are complete, the solution is allowed to agitate for several hours to ensure oxidation of complexed cyanides. An excess chlorine content is monitored during this period by means of the starch test paper. Additional hypochlorite is added as required.

Following the reaction period, any excess chlorine is removed by the addition of NaHSO₃ solutions. Final pH adjustment to 9 is made in Tank T-1 thru T-7 with the addition of acid.

A pH readjustment is made following a 15 minute agitation and the solution pumped to clarifiers C-1 thru C-4 for sludge separation.

#### 2.64 SLUDGE PROCESSING

The reaction mixture from the treatment of acid/alkali. cyanide, metal bearing and spillage wastes contains suspended metal hydroxide floc which must be removed from the mixture. Four clarifiers will be utilized for this purpose (Tanks C-1 thru C-4). The reaction mixture is pumped to one or more of these clarifiers and the floc is allowed to settle for several hours. During this period, the solid particles agglomerate and settle to the bottom of the clarifier to form a sludge.

If the settling process does not produce a sufficient quantity of clarified water, the whole slurry will be pumped through the filtration system.

Metal hydroxide solids are separated from the sludge by means of a filtration system. The filtrate is further processed to reduce metal content as determined by testing. The filtrate resulting from the filtering operation is pumped to neutralization Tanks S-29.1 and S-29.2 and/or into the final effluent Tanks (E-1 to E-6).

### 2.65 FINAL NEUTRALIZATION

The purified wastewater from the clarification and filtration will be pumped to the continuous neutralization process for pH control.

The purified and neutralized wastewater, after this step, is now suitable for ion exchange processing, if required, discharge to the public sewer, or evaporation in the evaporator/crystallizer_system.

### 2.66 FINAL POLISHING - LON EXCHANGE

After detoxification, neutralization and filtration, the wastewater may still contain very small residual amounts of metals. For some waste streams these metal traces can be removed by means of ion exchange.

The clarified wastewater is transferred to pumping Tanks 5-29.1 or S 29.2 and/or E-1 through E-6 from which it will undergo final polishing as needed.

Wasta water to be treated in the ion exchange will first be pumped through a pressure sand filter filled with

quartz.

This procedure will protect the ion exchange resins from small mechanical impurities and contact with turbid water. From the pressure filter the wastewater flows through one selective anion exchanger and two selective cation exchangers, connected in series. The concentrations of metals in these exchangers can be checked by means of a reagent that indicates heavy metals.

As soon as the capacity of the anion exchange column is exhausted, it will be disconnected and regenerated. During the regeneration cycle, clarified water will be retained in tanks S-29.1 and S-29.2 or E-1 through E-6.

As soon as the capacity of the first cation exchange column is exhausted, it will be disconnected. During this regeneration, the second column will be operated alone. After regeneration, the first column will be reconnected in such a way that it will become the second ion exchange column in the series. This system will prevent the escape of metal ions into the sewer. The ion exchangers are also able to remove small amounts of heavy metals from effluents with high neutral salt contents.

The regeneration of the anion exchangers is performed by means of diluted sodium hydroxide. After the sodium hydroxide treatment, the resin will be washed out. The alkaline regenerant and wash water will be fed into an appropriate caste storage Tank. The volume of wastewater per regeneration will amount to about 750 gallons per day.

The regeneration of the cation exchanges is performed by means of diluted hydrochloric acid. After the hydrochloric acid treatment, the resin will be washed out, conditioned by means of diluted caustic soda solution, and washed out once more. The regenerant and the wash water will be fed into one of the acid wastewater storage tanks. The volume of wastewater per regeneration will amount to about 800-900 gallons per day.

The water in Tanks E-1 thru E-6 will be discharged to sewer only after it has been sampled and analyzed to confirm compliance with ETICAM's water discharge permit, or evaporated in the evaporator/crystallizer system.

### 2.87 SOLUTIONS CONTAINING VALUABLE METALS

Solutions containing recoverable concentrations of gold, silver, nickel, or copper will be processed for actual removal of the particular metal. This will be accomplished by the chemical treatment and electrolytic deposition of the metal.

Equipment to be provided for electrolytic recovery/ion exchange of these metals will be located in the filtration room as shown on site plan Sheet D. This equipment basically consists of electrolytic units for cadmium,

Page 2-25

## ATTACHMENT 8

PROCEDURES FOR HANDLING REACTIVE OR IGNITABLE WATES IN TANKS



### ETICAM Fernley, Nevada

This section describes the design features, structures, equipment, and procedures used at ETICAM to prevent hazards during material unloading, transfer, storage and treatment operations.

### 8.10 GENERAL

Special procedures and equipment must be used at regulated treatment/storage facilities to prevent runoff of spills and/or leaks of reclaimable material to the environment. prevent contamination of surface or groundwater supplies, mitigate the effects of equipment failure and power outages, and prevent undue exposure of personnel to hazardous materials. ETICAM has addressed such environmental safeguards to prevent the occurrence of any of the above situations.

### 8.20 LOADING/UNLOADING

#### 8.21 GENERAL

Materials are received from various types of delivery vehicles. Transfer will be effected either by bulk delivery from a tank truck or from a cargo truck or from containers to the storage tanks. The cutents of portable tanks and containers are pumped to the storage tanks while on the truck. Only empty portable tanks are to be stored

outside of permitted areas. During unloading operations, spills are unlikely since all unloading takes place within a contained area; however, in the event of a release to the environment, standard industrial absorbents are located nearby.

The unloading area is designed with a segregated area for cyanide discharge. This area is separately bermed and drained to prevent accidental mixing of reactive products in the event of a spill. (See Plans and Specifications, Section 14 of the original permit application)

In the event of a manifest discrepancy requiring the quarantine of a shipment as described in Section 3.31, the vehicle with the shipment will be quarantined on the entrance drive or in receiving bays. These bays are designed to address all requirements of 40 CFR Section 264.175 which specifies containment requirements for the management of containers.

Empty containers will be available to transfer hazardous waste in the event of structural defects or leaks in shipped containers. All containers used to transport waste to the facility will meet the appropriate DOT specifications. (Note that each container will have a specific DOT registration number which is different for each manufacturer)

### 8.22 BULK - UNLOADING/LOADING

Wastewater will be delivered to the plant by specialized trucks. For transportation of small volumes. containers with a capacity of up to 550 gallons will be provided. Larger volumes will be conveyed by tank trucks.

Trucks will be loaded such that acid and cyanide waste waters will not be transported on the same truck. The unloading station is completely enclosed, and any spillage is contained by a special drainage system inside the building and is eventually treated. This system eliminates the possibility of wastes leaving the building.

Wastes are gravity fed or pumped to the tanks in the storage area, or pumped directly to the reactor. Waste streams not requiring treatment may be pumped directly to the sludge tanks (clarifiers), effluent tanks or evaporation system. Transfer will be through permanently installed piping or temporary hoses. When hoses are used, an operator will be present during the transfer process, and hoses will be within spill containment areas. Wastes are pumped from tanks in the waste storage area to the waste processing or recovery area for treatment.

Special lock-out systems will be used to prevent accidental mixing of the wastes. Each coupling will have a key lock and electrical lock-outs controlled by the shift operator. To further guard against accidental

mixing of wastes. Only responsible and trained personnel will be in charge of tank unloading. These tank unloading personnel will be responsible for checking the wastes and operating the discharge valves. Portable tanks and containers will be discharged by gravity or pumped. Except for special situations as noted in section 2.41, the containers will stay on trucks while being emptyed. The only time tanks will normally be removed from trucks is after they have been completely emptied.

Since containers are normally not removed from the truck while full, no additional equipment beyond what is cited above is required to prevent hazards in unloading process. Each truck is parked in a bermed and sloped unloading area depending on the type of waste being hauled. Each sloped unloading area drains into one of two 3168 gallon holding spillage tanks. The unloading area is constructed of concrete and sealed with an epoxy sealant. The Cyanide unloading area drains into S-11 and the acid/alkaline unloading area drains into S-11.1. In this way contamination of the water supply is highly unlikely. Since all safety and unloading equipment are designed for gravity flow, or pumping rather than pressurizing the tank, safety precautions would be unaffected by a power outage or equipment failure.

### 8.30 STORAGE/TREATMENT AREA PARAMETERS

### 8.31 GENERAL

All storage areas are within the roofed building and therefore, are not subject to precipitation buildup which would have required special provisions for run-on or run-off control. Therefor there will be no accumulation of liquids (precipitation) requiring analysis. Spills will be handled as described in Section 8.33.

### 8.32 TANK STORAGE/TREATMENT AREA

### 8.32.1 STORAGE TANKS

There will be 28 tanks in the existing liquid storage area, and three tanks in the new solids receiving area.

Each tank will have capacities as shown in Table 8.2.

Unloading procedures are outlined in Section 8.22.

The 28 liquid waste storage tanks are situated within five containment areas (see Site Plan Sheet C (floor plan)). Tanks for acids, alkalis, and cyanide wastewaters will each be stored in separate containment areas. The solids unloading hoppers and dissolution tank are located in a concrete pit inside the new solids unloading building addition, (See revised floor Plan, Sheet D in section 8 of the Class II Permit Modification Request Revisions dated July 11, 1990).

Each containment area is constructed with a concrete floor and will be surrounded by a concrete berm which will

provide a minimum secondary containment capacity equal to 110% of the volume of the largest tank contained therein. Each containment area will also be equipped with a collection sump to collect spilled or leaked materials. The collection sumps will be equipped with a level indicator which will indicate when the sump contains liquid. The liquid in the drainage pit will be analyzed, and then pumped to an appropriate storage tank.

Each storage tank is equipped with a liquid level indicator to signal when the tank is full and prevent overfilling.

### 8.32.2 STORAGE TANKS

The total capacity of the waste storage tanks will be 123,024 gallons in the liquid storage area, and 13,500 gallons in the solids receiving area. There will be a total of 28 tanks in the liquid storage area; ten with a capacity of 6600 gallons and 18 with capacity of 3168 gallons. The new solids receiving building addition will contain two solids receiving hoppers having a capacity of 5,000 gallons, and a dissolution tank with a capacity of 3,500 gallons. (see the floor planon Sheet D for tank locations). The containment volume of each containment area is indicated on Table 8.1 of this Section.

Table 8.1

Containment Area Volumes for Storage Tanks

Are	a <u>Tank No's</u>	<u>Contents</u>	Tank <u>Volume</u> (gals)	Containment Volume (gals)	
1	S-1 thru S-2	Alk/Cyanide	13,200	52,000	
2	S-3 thru S-6	Alkaline	26,400	52,000	
3	S-7 thru S-10	O Acid	26,400	36,000	
1	S-11 thru S-1	5 Alk/Cyanide	15,840	34,900	
3	S-16 thru S-28 (Including S-		41,184	58,000	
Solids Receiving Area					
	H-1 thru H-1 & D-1	Sludges	13,500	177,415	

### 8.32.3 TREATMENT TANKS

The entire area containing the treatment tanks T-1 thru T-7 and the effluent tanks E-1 thru E-6 (Detox, Dewatering, Drying) has a containment of approximately 130,000 gallons, which is greater than the volume of the tanks in the area. An 8 inch curb separates the detox room from the dewatering room and will contain greater than 110% of any reactor (8,000 gallons). Detox has over 11,000 gallons of containment capacity.

### 8.33 CONTAINMENT AREA ACCUMULATION

Liquids which accumulate in any of the proposed secondary containment areas will be handled as follows:

- a) If the exact source of the leaked or spilled material can readily be determined, the material will be identified accordingly. It will be transferred to an appropriate tank or container as applicable.
  - b) If the source or identity of the spill cannot be determined, a sample will be collected and analyzed to see if it exhibits any of the four characteristics of a hazardous waste (ignitability, corrosivity, reactivity or TCLP), or to see if it contains any of the hazardous constituents (40 CFR 261 Appendix VII) of any listed wastes stored in the particular containment area.

In either case (a) or (b) above, any accumulated liquid in secondary containment areas will be removed as soon as possible to preclude any possibility of overflow.

### 8.40 PRECAUTIONS RELATING TO FLAMMABLE WASTES

Only waste waters and sludges (as defined by EPA 40 CFR 260.10) are to be received at ETICAM's facility. These waste streams are non flammable and non combustible. Therefore, special precautions for flammable wastes are not needed. However, as a precaution, "No Smoking" signs are posted about all unloading areas and throughout the plant.

### 8.41 PRECAUTIONS RELATING TO REACTIVE WASTE

The primary reactive wastes handled at ETICAM are sulfide and cyanide bearing wastes which could generate toxic gases, if exposed to appropriate pH conditions. Storage tanks containing these materials are maintained in totally separately diked storage areas at ETICAM, completely separate from other types of incompatible (acid) wastes, so that there is no possibility of mixing during storage.

The only areas where sulfides or cyanides will be stored are Storage Areas 1 and 4 as shown on the Floor Plan (Site Plan C). Area 1 cyanide storage tanks are segregated from all other waste types by it's containment wall (berm). Area 4 includes both alkaline and cyanide special metal bearing wastes which are compatible and

which are segregated from other waste types (acids). Therefore, the CN storage tanks are segregated from incompatible wastestreams (the acid wastewaters).

The potential consequence of mixing a strong acid with a sulfide or cyanide waste would be the generation of hydrogen sulfide (H2S) or hydrogen cyanide (HCN) gas.

In order to guard against this potential, acid or acid bearing material will never be stored within the cyanide storage areas, and cyanide bearing waste will never be stored in an acid storage area. Some acid waste will contain metal complexed cyanides which are highly stable and present minimal hazards, and these would be stored in an acid area since they would be incompatible with other cyanide wastes. Further, all tanks and storage areas are vented through a scrubber system to control potential emissions to the environment.

In order to insure that reactive wastes are stored and treated safely, methods and procedures are used to protect reactive materials from experiencing conditions that may cause the waste to undergo adverse reactions. The following precautions have been taken:

 All tanks, pipe lines and reactors are dedicated to insure that there is no co-mingling of products beyond the point of discharge.

- All reactive wastes are stored in their own berms.
- 3. Storage and treatment designs have been reviewed by a Nevada professional engineers to insure that they comply with National Fire Protection Association buffer zone requirements for tanks.
- 4. A separate unloading area has been designated for sulfide or cyanide wastes. This area is bermed and drained separately from the remainder of the unloading area to prevent possible interaction of sulfide or cyanides and acids due to spills. This area will also be used for the quarantining of any unreconciled sulfide or cyanide waste loads.
- 3. All cyanide designated storage or treatment areas are alarmed with cyanide detectors which monitor cyanide levels and trigger an alarm at the OSHA limit (TLV of 5.0 ppm), or as specified in the facility air permit which may change from time to time.

### 2.50 EQUIPMENT FAILURE

### 8.51 POWER FAILURE

Since ETICAM is a storage and treatment facility only, the effects of equipment failure and/or power outages are minimal. However, the following equipment will be installed to mitigate the effects of power outages. In the event of a brief power interruption, security is not affected. A back-up system is in effect and will maintain the motion detectors and perimeter alarms and cyanide and hydrogen sulfide detectors in operation for a period of approximately four (4) hours.

A 150 kilowatt stand-by engine generator set has been installed which will provide power to the main control panel (alarms, level sensors, control systems, cyanide detectors, etc), the emergency lighting system, the air pollution scrubbers, and the air compressor (to power air-driven diaphragm pumps). The engine generator set will be diesel powered with at least 24 hours of diesel supply, and will be automatically brought on-line with an automatic transfer switch in the event of power failure.



# ATTACHMENT 9 PROCEDURES FOR HANDLING INCOMPATIBLE WASTES IN TANKS





# ATTACHMENT 10 TANK PLANS AND SPECIFICATIONS

TABLE 8.2

# Wastewater Treatment and Storage Tank Specifications

Tank ²	Description <u>of use</u>	Type (construction)	Capacity cu. meters callons	Approximately Dimensions (lgth. x width x hgt. or dia. x hgt.) in m and feet	Wall Thickness (MM)
S-1 thru S-2	collecting basin cyanide	polypropylene cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottom
S-3 thru S-6	collecting basin alkali	polypropylene cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottom
S-7 thru S-8	collecting basin acid	polypropylene cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottom
S-9 thru S-10	collecting basin acid	polyvinyl chloride cylindrical vertical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottom
S-11 thru S-12	collecting basin spe- cial waste water cyanide	polypropylene cylindrical vertical	12.2 3223.2	1.8 x 4.8 5.9 x 15.7	l6 side 15 bottom
S-13 thru S-14	collecting basin spe- cial waste water	polypropylene cylindrical vertical	12.2 3223.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottom
S-15 thru S-28	collecting basin spe- cial waste water acid	polypropylene cylindrical vertical	12.2 3223.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottom
S-29A S029B	collecting basin clear	polypropylene cylindrical	12.2	1.8 x 4.8 5.9 x 15.7	16 side 15 bottam
S-30 thru S-33	collecting basin treated water	polypropylene cylindrical	25.3 6684.3	2.4 x 5.6 7.9 x 18.4	24 side 20 bottom

R: 10 Sept. 1985

TABLE 8.2 (continued)

Tank No.	Description of use	Type (construction)	Capacity M (callons)	Approximately Dimensions (lgth. x width) x hgt. or dia. x hgt.) in m and feet	Wall Thickness (MM)
T-1 thru T-3	treatment basin	PVC steel armouring PVC lining	27.6 7291.9	6.1x2.4x2.0 20.0x7.9x6.6	7 side 7 bottom 5 steel
T-4	neutraliza- tion basin	PVC steel armouring PVC lining	10.8 2853.4	2.8x2.1x2.0 9.2x6.9x6.6	7 side 7 bottom 5 steel
C-1 thru C-2	sludge tank	polypropylene cylindrical vertical	27.1 7159.8	2.4 x 6 7.9 x 19.7	24 side 20 bottom

Note: Specifications for the virgin chemical storage and feed tanks, the electrolytic system tanks, facility pumps, and wastewater effluent polishing equipment is provided in Appendix G.

- 1 Source: ETICAM
- 2 Location shown on Floor Plan (Site Plan C).
- 3 Two tanks are to be constructed of PVC-HSV and are to be used to hold some of the concentrated acids.

### Wastewater Treatment and Storage Tank Specifications Continued

Tank No.	Description of ase	Type (construction)	Capacity gallons	Approximate Dimensions (lgth. x width x hgt. or dia. x hgt.) in m and feet	Wall Thickness (MM) or U. S. Equivalent (inches)
C-3 and C-4	sludge tank	polyethylene cone	7,000	10'1" Dia. X 19'1" Ht	
D-1	dissolution tank	steel rubber lined	3,830	8' X 8' X 8'	0.25 steel 0.25 rubber
H-1 and H-2	solids hopper	steel UHMW lined	5,000	12'L X 12'W X 4'D X 15'H	0.25 steel
T-3	alkaline/ cyanide reactor	FRP cone bottom	3,500	12' X 7' cone	0.5 side 0.75 bottom
T-6 and T-7	alkaline/ cyanide reactor	steel rubber lined	8,140	16' X 8' X 8'6"	0.25 steel 0.25 rubber
)T-4*	alkaline/ cyanide reactor	steel rubber !ined	3,830	8' M 3' M 8'	0.25 steel 0.25 rubber
S-29A* and S-29B*	collecting basins clear	polyethylene cone	4.000	3' Dia. N 10' cone	***************************************
	pug mill	steel	800	11'3" X 4'2" X 3.5' Ht	0.25 steel
	dryers #1, #2, #3	steel	1 cu. yd.	6' X 3' X 1.5' Ht	0.25 steel
	dryers #5 & #6	steel	5 cu. yds.	9' X 5' X 3' pyramid	0.25 steel

^{*} Replaced existing tanks.

### 8.60 DESCRIPTION OF TANKS

#### 3.01 GENERAL

Tanks used at ETICAM to store and/or process the hazardous waste streams are indicated on the revised Process Flow Diagram (Sheet B), and revised Site Plan (Sheet D). The types (construction), usage, capacities, dimensions and wall thickness of the tanks are provided in Table 3.2. Compatibility of tank construction material with that of the stored material is also discussed in this section. The type and construction of tank foundations and supports are discussed in Section 3.63. Tank feed systems, safety cutoffs, bypass systems, and pressure controls are shown on the Process Flow Diagram (Section 14.00 of the original permit application, and in section 3.0 of the Class II Permit Modification Request Revisions dated July 11, 1900).

All tanks are vented through the scrubber system and are maintained at sightly negative pressure at all times. This system maintains a maximum negative pressure of 15 MBAR (0.22 psig). Based on the DVS manufacturing specifications, tanks cannot collapse at these pressures. Additionally the tanks to not have sealed lids.

All tanks at ETICAM will be subject to the routine inspection described in Section 5.00. Any problems noted during such inspections will be corrected prior to reuse of any defective tanks or associated equipment.

#### 8.02 DESIGN STANDARDS/WASTE COMPATIBILITY

The design and construction of the tanks used to store and/or treat hazardous waste at ETICAM are appropriate for the material handled. The waste-water storage and treatment tanks will be manufactured in accordance with international standards for construction of tanks. Said specifications are included in Appendix H of the original permit application. Specifications for new tanks are given in the Tank Assessment in Section 11 of the Class II Permit Modification Request Revisions dated July 11, 1990.

All storage and receiving tanks for cyanide, alkaline, and acid waste waters are constructed from polypropylene. Four acid storage tanks are constructed from PVC-FRP. All other acid storage tanks are polypropylene. Construction materials, wall thicknesses and other information about the tanks is provided in Tables 8.2.

Polypropylene is widely used in electroplating rinse tanks because it has proved to be resistant to the chemicals used. Storage and receiving tanks will only be used to hold materials at room temperature. Most of the waste waters accepted at ETICAM will consist of Jilute solutions.

Polypropylene tanks are widely used for the types of chemicals and concentrations which will be accepted at ETICAM. Table 8.2 contains chemical resistance data derived from a table provided by the manufacturer. The manufacturer's complete table is provided in Appendix H of the original permit applicatin, and in Section 11 Tank Assessment of teh permit revision. This information indicates that the storage and receiving tanks will be resistant to the wastewaters typically accepted at ETICAM.

The estimated corrosion or oxidation rates of these tanks is negligible. Therefore, no wall thinning will occur during normal use.

Lab technicians who carry out the waste analysis procedures outlined in Section 3.00 will determine which tanks to store waste in. These personnel will be familiar with manufacturer's specifications for tank/material compatibility. If they encounter a concentrated corrosive material in the course of the waste analysis procedures they will determine whether the material should be stored in the polypropylene tanks at that concentration. They may specify that the material be diluted before being stored, if necessary. For concentrated acid solutions, lab personnel will determine whether better resistance to the material will be found in the PVC-FRP tank or the polypropylene tank, and store the material accordingly.

Treatment tanks used at ETICAM are constructed of polypropylene (with and without reinforcing), fiberglass or welded steel plates lined with rubber or PVC. The rubber lining will protect the steel from corrosive material stored and treated in the tanks. Structural specifications and corrosion resistance for these tanks is included in the section 11 Tank Assessment of the Class II Permit Modification Request Revisions dated July 11, 1990.

All wastewater treatment and storage tanks will be tested periodically by ultrasonic testing in order to detect wall thinning due to corrosion.

If wall thinning is found in any tank, the history of the tank will be reviewed in an attempt to determine the cause. If wall thinning is significant, the tank will be removed from service.

### 3.03 TANK FOUNDATIONS AND SUPPORTS

The design of tank supports, bracing, and foundations are reviewed in this section. The information is intended to demonstrate that the proposed supports, bracing, and foundations will adequately and safely support the waste storage and treatment tanks at ETICAM.

A typical storage/treatment tank support and foundation system are shown on the attached drawing. This system will be designed to resist seismic forces in accordance with the Uniform Building Code. 1982 Edition. Fernley lies in Seismic Zone 3, a region with a high probability for a seismic event. The support system will prevent tank overturning and will resist sliding of the tank by transference of lateral forces to the foundation. All design and construction will be performed in accordance with applicable codes and ordinances.

CHEMICAL RESISTANCE DATA from Foema. Dr. Gotzelmann KG: Chemi Kallenbestandigkeit der Polyolefine HDPE and PP

	Temperature		
Chemical Description	( <u>C</u> )		RESISTANCE*
Hydrochloric Acid HCL	50	<del>;</del>	÷
Chromium Trioxide Cr2O3	100	-	0
50% water 50% water	40 60	+ O	+ O
Chromium Trioxide/Sulfuric Acid/W Cr ₂ O ₃ + H ₂ SO ₄ + H ₂ O	ater		
50%/15%/35% 50%/15%/35%	4 0 6 0	+ O	
Potasium Cyanide, KCN			
10% 10%	6 0 1 0	÷ O	÷ +
Acetic Acid CH ₃ - COOH			
25% 25% 25% - 60% 80% 80% 85% 85% 95%	÷0 60 €0 +0 100 80 100	+ + 0 0	÷ ÷ ÷ - 0
Sodium Chloride, NaCl	60	0	+
Sulfuric Acid/Nitric Acid/Water			
48%/49%/3% 48%/49%/3% 50%/50%/0 50/50/0 10/20/70 10/87/3 50/31/19	20 40 20 40 50 20 30	0 0 0 - + 0 +	- - - 0 -

# CHEMICAL RESISTANCE DATA from Foema, Dr. Gotzelmann KG: Chemi Kallenbestandigkeit der Polyolefine HDPE und PP

### (Continued)

Temperature  O LINER RESISTANCE  (C) PVC PP  Sodium Hydroxide, NaOH	*;
Sodium Hydroxide, NaOH	
10% + +	
40% 60 O +	
50/60% + +	
50% 100 - +	
Nitric Acid, HNO3	•
30% + +	
30/50% 50 . + -	
40%	
40% 90	
48% 80	
70% + -	
70% 60 o -	
98% 20	
98%	
Hydrochloric Acid, HCl	
30% ± ÷ ÷	
30% 60 O +	
30% (ueber) 20 + +	
30% 60 O o	
30%	
Sulfuric Acid H ₂ SO ₄	
40% 20 + +	
40% + +	
70% 20 + +	
70% 60 O	
80 - 90% + 0	
96% 20 O	
96%	

^{*} Liner Resistance Rating (To indicated material at indicated temperature):

^{- =} unsatisfactory O = satisfactory + = good

# DRAWINGS SHOWING PIPING DIAGRAMS OF NEW PIPING SYSTEMS

Drawing numbers 100 through 105

SEE ATTACHMENT 10 FOR DRAWINGS 100-105

### 8.70 DIAGRAMS OF NEW PIPING SYSTEMS

Drawing numbers 100 through 105 show the schematic and plan view layout of revised and new piping systems. These systems have been modified or designed to eliminate cross mixing of waste streams by using separate pipes dedicated to each tank or reactor.

Additionally, hose connections are used to make connections to a manifold, again allowing only one hose to be connected at a time. This eliminates the old system which allowed tanks to be connected through a series of valves.

These Drawings are as follows:

### Dwg = 100 TYPICAL CROSS SECTION OF TANKS AND PIPING

Shows the relative elevations of the Truck Bay, Storage Tanks, and Reactors.

### Owg : 101 PIPING DIAGRAM FOR TANKS B/CN1-2 AND B/CN17-21

Note that the tank numbers are the same as the briginally labeled S tanks. B/CN designates base or syanize storage.

This drawing shows new segregated piping replacing the briginal common fill lines for larger groups of tanks, as well as pump out lines to the reactors.

### Dwg # 102 PIPING DIAGRAM FOR TANKS B 7-10 AND A 13-16

Shows new segregated piping feeding the existing reactors: replacing common manifolds.

### Dwg = 103 FIFING DIAGRAM FOR TANKS A 29-41

Shows new segregated pipe arrangement, and special valve configurations to allow none contamination of line segments.

### Owe " 104 EFFLUENT PIPING

Shows approximate actual floor plan layout and piping systems. These are dedicated filtrate return lines used for multiple step treatment. These lines replace existing temporary hose systems. Note that short hose connections will be made to the proper line at a manifold in the dewatering room.

Tanks E-3, 4, 5, & 6 become the filtrate receiving tanks, and tanks E-7 & 8 are used for crystallizer feed and condensate return where sampling of effluent is conducted prior to discharging. This tank may contain condensate or treated effluent.

These tanks are the same as originally identified tanks S-30, 31, 32, 23, 34, & 35.

### Dwg = 105 SLUDGE TRANSFER PIPING

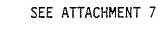
Shows dedicated piping from storage tanks to reactors as well as from the reactors to the slurry tanks, and from the dissolution tank to the reactors.

Drawings #100 Manog 4#105.

Pog mill information

## ATTACHMENT 8

PROCEDURES FOR HANDLING REACTIVE OR IGNITABLE WATES IN TANKS



## ATTACHMENT 9 PROCEDURES FOR HANDLING INCOMPATIBLE WASTES IN TANKS

SEE ATTACHMENT 7

#### ATTACHMENT 10

#### TANK PLANS & SPECIFICATIONS

See revised pages 8-13 through 8-22 of Attachment 7; Sheets A through D of Attachment 5; and plans in this attachment

Revised November 19, 1990

### DRAWINGS SHOWING PIPING DIAGRAMS OF NEW PIPING SYSTEMS

Drawing numbers 100 through 105

#### 8.70 DIAGRAMS OF NEW PIPING SYSTEMS

Drawing numbers 100 through 105 show the schematic and plan view layout of revised and new piping systems. These systems have been modified or designed to eliminate cross mixing of waste streams by using separate pipes dedicated to each tank or reactor.

Additionally, hose connections are used to make connections to a manifold, again allowing only one hose to be connected at a time. This eliminates the old system which allowed tanks to be connected through a series of valves.

These Drawings are as follows:

#### Dwg = 100 TYPICAL CROSS SECTION OF TANKS AND PIPING

Shows the relative elevations of the Truck Bay, Storage Tanks, and Reactors.

#### Dwg * 101 PIPING DYAGRAM FOR TANKS B/CN1-2 AND B/CN17-21

Note that the tank numbers are the same as the originally labeled S tanks. B/CN designates base or symmiss storage.

This drawing shows new segregated piping replacing the triginal common fill lines for larger groups of tanks, as well as pump out lines to the reactors.

#### Dwg # 102 PIPING DIAGRAM FOR TANKS B 7-10 AND A 13-16

Shows new segregated piping feeding the existing reactors: replacing common manifolds.

#### Dwg # 103 FIPING DIAGRAM FOR TANKS A 29-41

Shows new segregated pipe arrangement, and special valve configurations to allow none contamination of line segments.

#### Dwe : 104 EFFLUENT PIPING

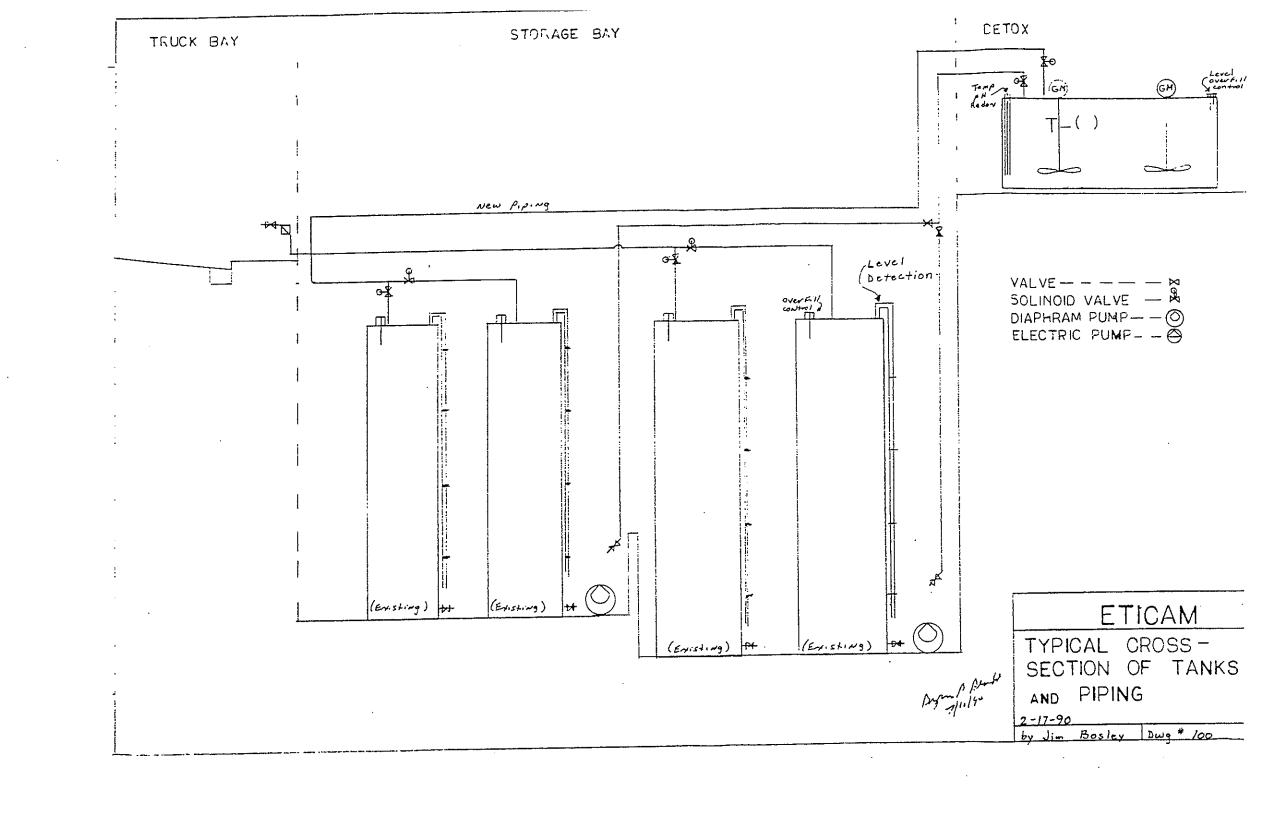
Shows approximate actual floor plan layout and piping systems. These are dedicated filtrate return lines used for multiple step treatment. These lines replace existing temporary hose systems. Note that short hose connections will be made so the proper line at a manifold in the dewatering room.

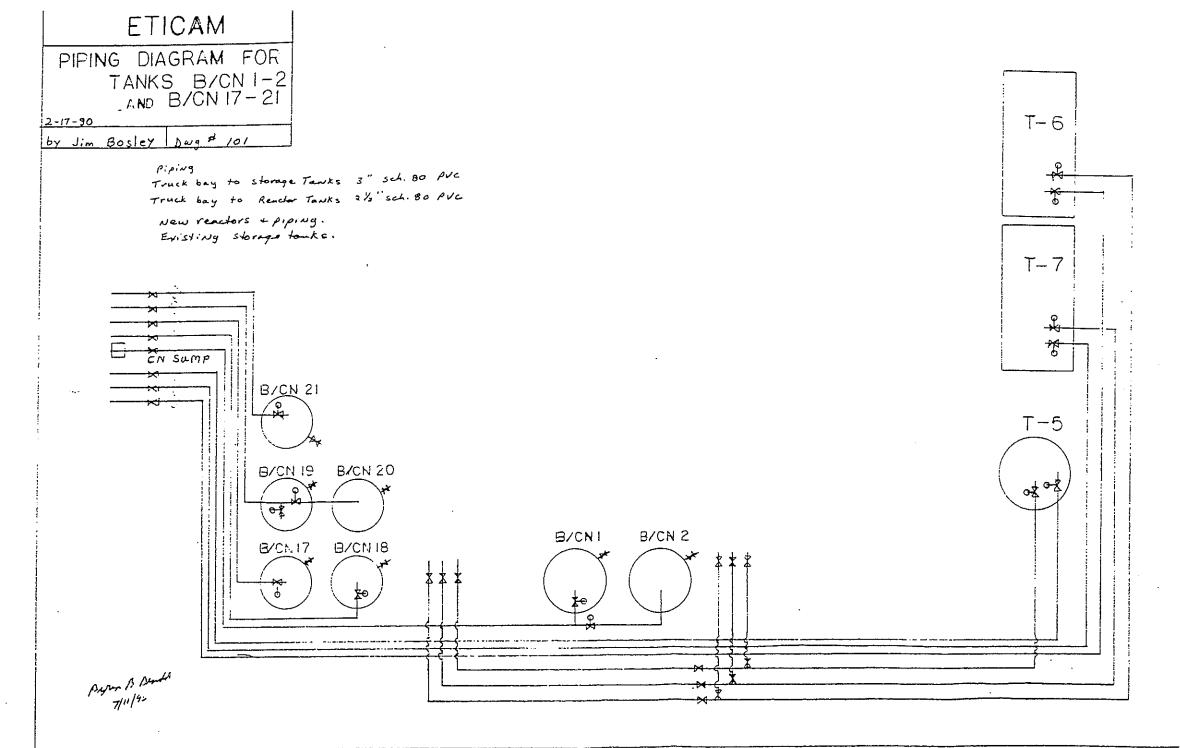
Tanks E-3, 4, 5, & 6 become the filtrate receiving tanks, and tanks E-7 & 8 are used for crystallizer feed and condensate return where sampling of effluent is conducted prior to discharging. This tank may contain condensate or treated effluent.

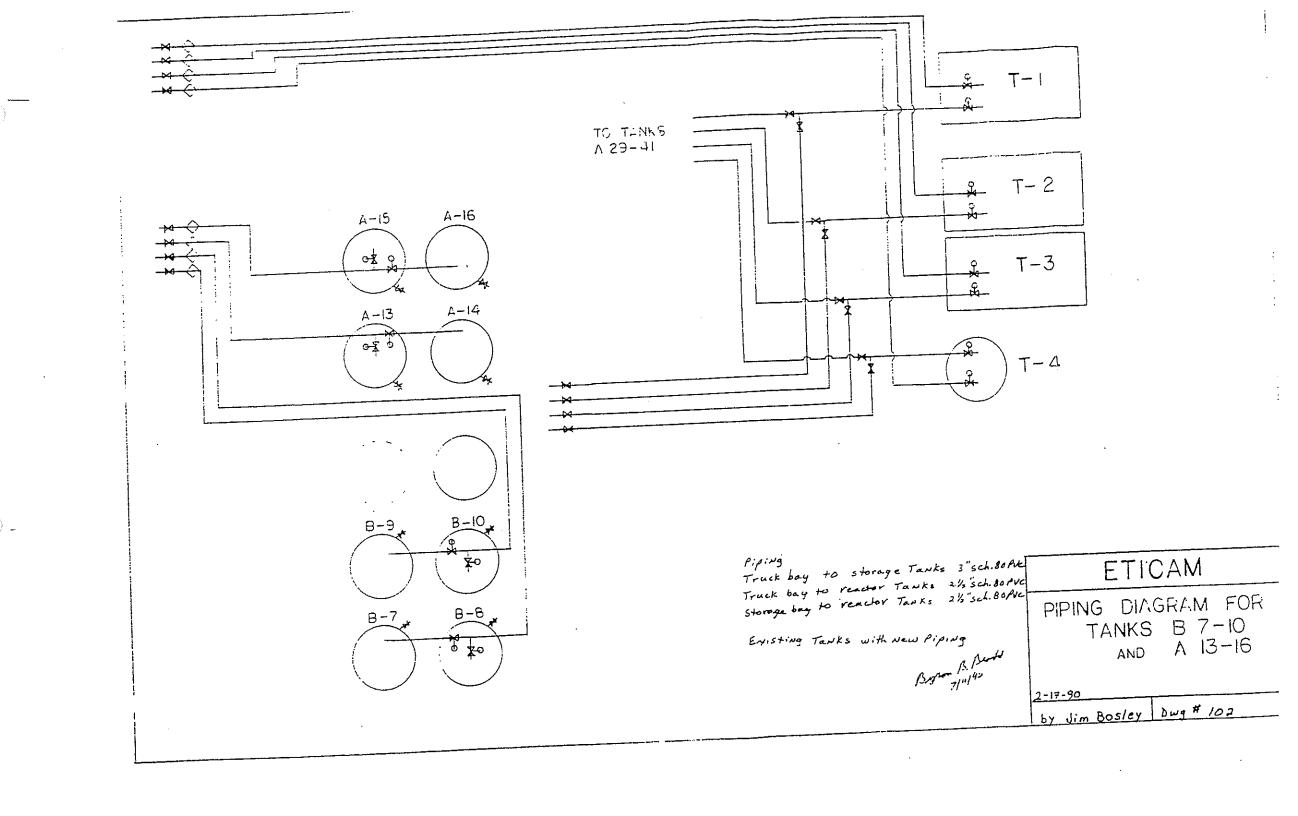
These tanks are the same as originally identified tanks S-30, 31, 32, 33, 34, & 35.

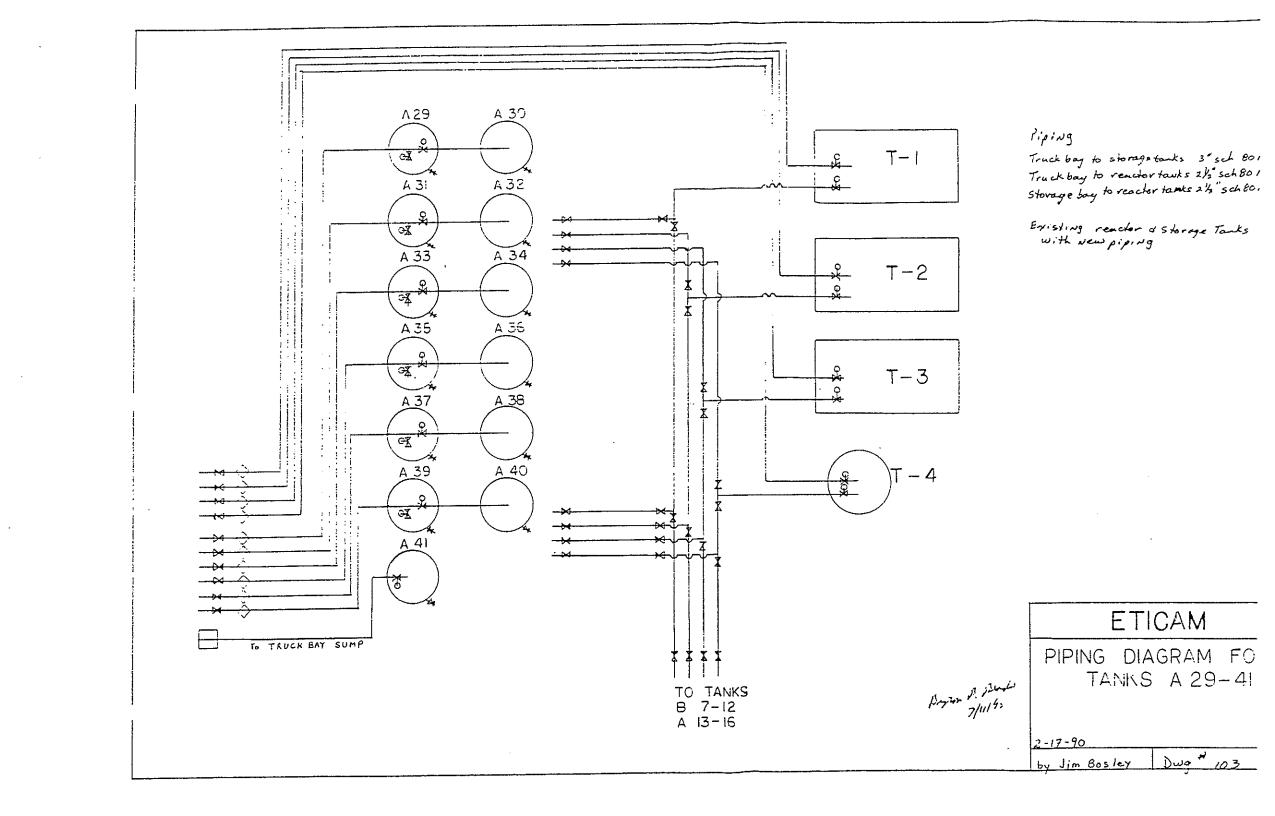
#### Dwg = 105 SLUDGE TRANSFER PIPING

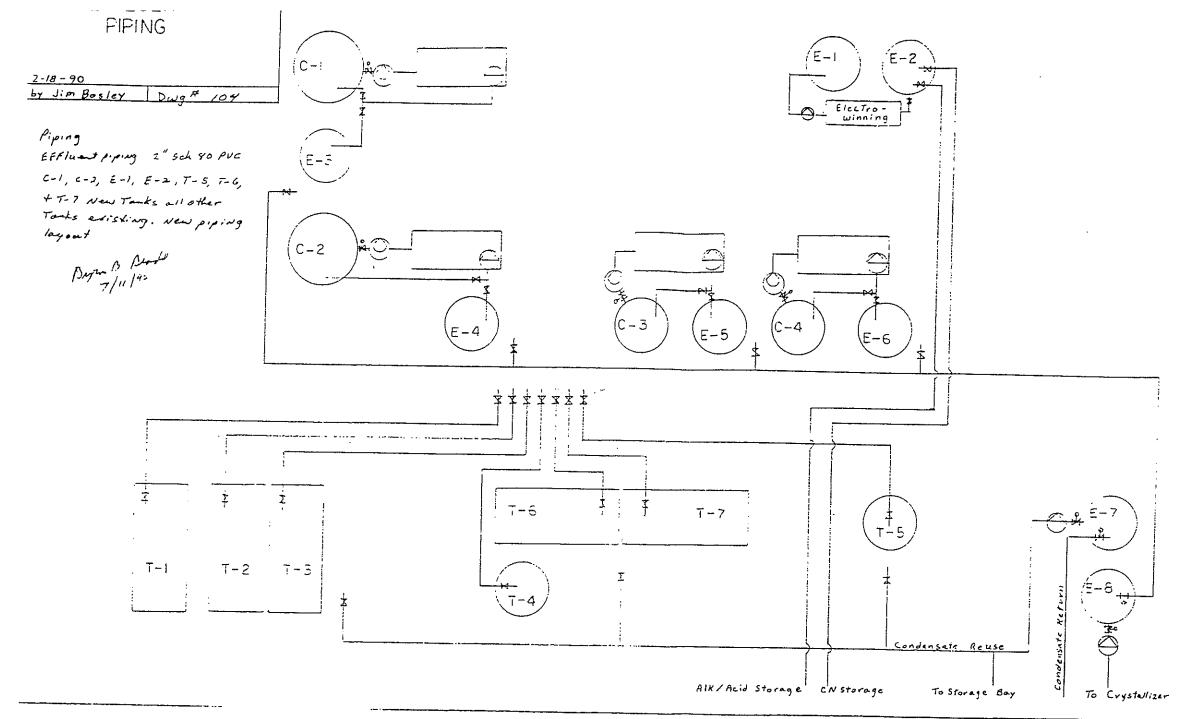
Shows dedicated piping from storage tanks to reactors as well as from the reactors to the slurry tanks, and from the dissolution tank to the reactors.



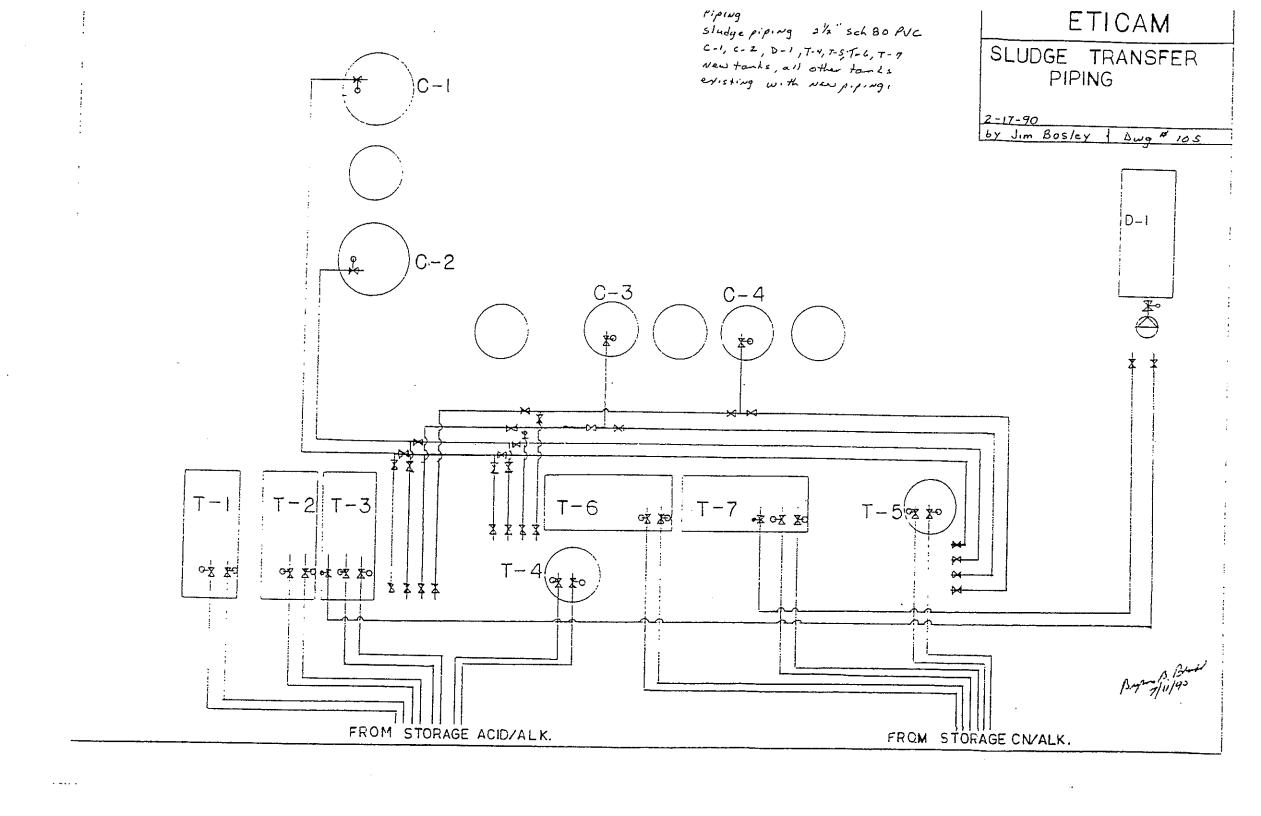


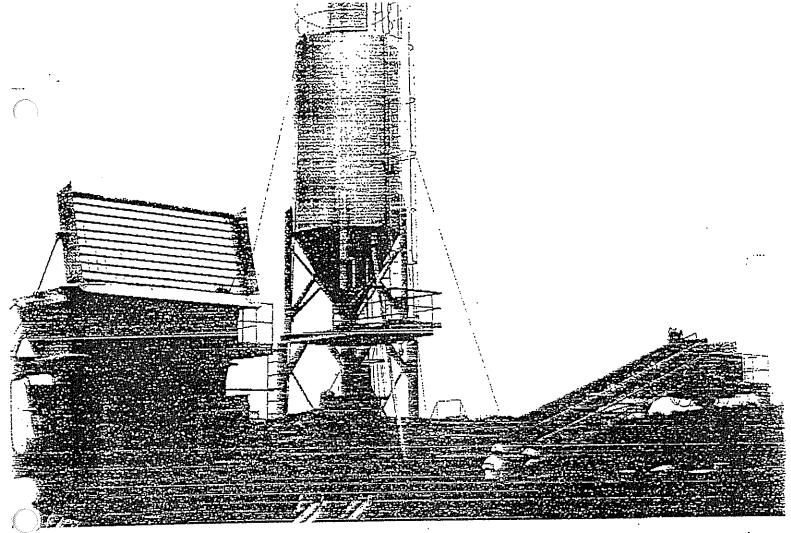






#104





## DAYS MODULAR PUGMIL PLANTS

Custom-built equipment for controlled, high-capacity, continuous mixing to stabalize base materials, sludge or hazardous waste materials

In a typical, custom-designed plant, such as the one shown above, material is fed through a grizzly and into a hopper. Oversize material is trapped on the grizzly and prevented from entering the process. Material then feeds out of the bottom of the hopper through a variable-speed, twin screw feeder or belt feeder. As the material leaves the feeder, it drops onto a constant-speed feed conveyor. The material on the feed conveyor passes over a belt scale and is continuously weighed as it passes into the pugmill.

Comentitious material can be added from a silo through a rotary vane feeder located at the bottom of the cone. Upon exiting the rotary vane feeder, material passes through a solids flowmeter which continuously measures the flowrate. The material then proceeds into the pugmill mixing chamber.

Liquid can be added through a liquid pump. As liquid flows through the pump, flow is continuously measured by a liquid flowmeter. Liquid then flows

through spray bars in the top of the pugmill chamber.

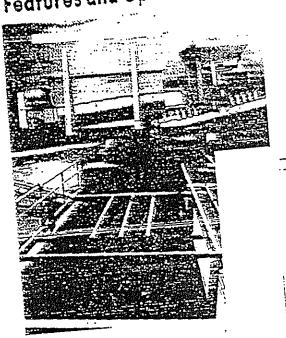
The aperator inputs desired ratios into a control console keypad and, based on the electronic signals from the weighing devices, all of the materials are fed into the pugmill proportionally to produce a controlled mixture. The materials are then thoroughly mixed as they pass through the mixing chamber. When the stabalized material is discharged from the pugmill, it proceeds up an inclined discharge conveyor and into a surge hopper for loading.

Each plant can be customized to include various features. Provisions can be made to include feeding systems for increasing the number of materials comprised in the mixture. Different arrangements for the process equipment may also be designed in order to match specific plant needs. In general, each plant can be custom designed to handle various situations.

DAVIS PUGHILLS - The Industry Standard

# DAVIS MODULAR PUGMILL PLANTS

Features and Options for High Capacity and Top Performance For Your Application



Pictured at left: Twin screw hopper feeds וופל חווש זסעשעמר סוחס scale. Reagents measured, mixed in ovamili. Liquids are added into mixing enamoer.

